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# Railway Age Gazette

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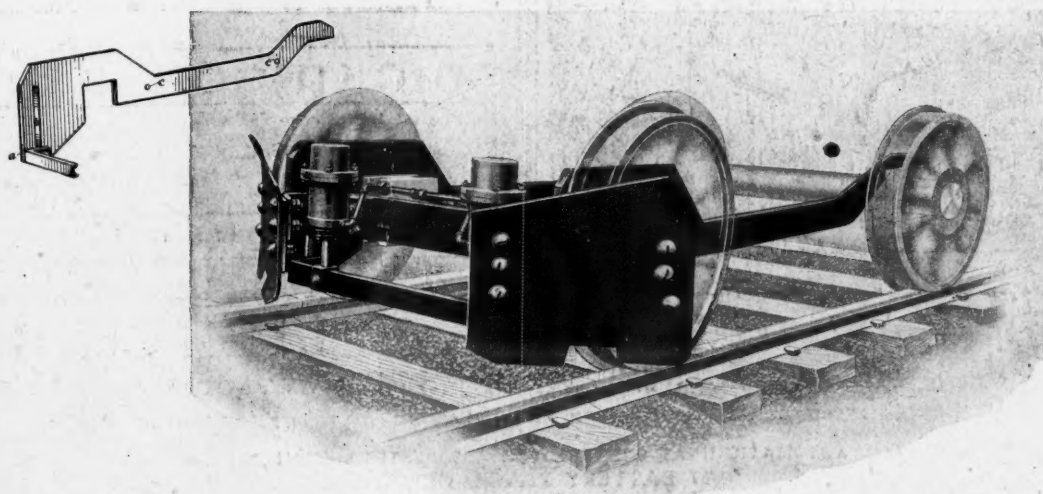
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# Railway Age Gazette

Volume 61

September 22, 1916

No. 12

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\* Illustrated.

The Railway Signal Association keeps up its reputation for solid work, despatched in a businesslike manner. The annual convention, reported in this issue, went off according to schedule, and at nearly all of the "division points"—the completion of discussion on a given committee report—was ahead of time.

### The Railway Signal Association

And this was not due to lack of material, but to the completeness of the work done by the committees. Many prominent members were absent, and the strike threat and infantile paralysis had caused the cancellation of scores of hotel reservations; but, as in former meetings, all interests were represented and no dictum of any committee "got by" unless it deserved to. The Journal of the association continues to be a useful compendium of current history. The report of Committee No. 8 at this meeting contains accounts of installations of alternating current signal apparatus on no less than 19 different lines—more than half of them standard steam railroads—all prepared by men thoroughly acquainted with their subject, and describing a great many novel devices and arrangements. Another example of the thoroughness of the Journal is to be found in an elaborate essay by F. L. Dodgson, filling 45 pages, on the efficiency of direct-current track relays of different resistances, and the susceptibility of such relays to foreign currents.

It may be said without exaggeration that Seth Low helped to make this country a better place to live in. A mere recitation of the various phases of his

### Seth Low and Railroad Labor Disputes

His work in connection with Tuskegee was of lasting benefit to this country as was also his work as president of Columbia University. It was principally due to the efforts of Seth Low and of Frank Trumbull, chairman of the Chesapeake & Ohio, that the Newlands act creating the board of mediation and conciliation was enacted and it was under the provisions of this act that Mr. Low and John H. Finley, president of the City College of New York, were chosen as the intermediate arbitrators to pass on the demands of the railroad

conductors and trainmen in 1913-1914. Belief in conciliation was a fundamental part of Mr. Low's creed. He made a distinction between conciliation and compromise, however. He believed in effecting a settlement of differences in labor disputes and he recognized that labor as well as capital was out to get all that it could. He recognized the distinction between this attitude and the attitude of the socialists who want everything owned by the community and the still more revolutionary attitude of the I. W. W., that everything belongs solely to labor. Mr. Low believed that both sides were after all they could get and public interest demanded that no matter what the differences were they should be settled peacefully. In making the award in the conductors' and trainmen's arbitration, Mr. Low based his findings—Mr. Finley was guided largely by Mr. Low's judgment—not on general principles, but on an adjustment of differences. Just as the world needs fighters, men of single purpose who see on a right side and a wrong side to any question; so the world needs also men of Seth Low's type with broader, more philosophical vision. In his award in the conductors' and trainmen's case Mr. Low was wrong, a great many railroad officers believe, and Mr. Low in a postscript to the award acknowledged this himself in part. In his recognition of the interests of the public in the preservation of peace between railroad employees and the managements, he was at variance with some railroad executives. Even the gross injustice, which has just been done the railroads by President Wilson, did not shake Mr. Low's faith in the ultimate good that must result from a peaceful settlement of railroad labor disputes. Mr. Low was a big-hearted generous man, loved and respected universally.

Among the many wild and ignorant statements made on the floor of Congress during the "consideration" of the "eight-

### Some Things That Are Not So

hour" law and during its subsequent defense by democratic members, the blue ribbon should undoubtedly be awarded to Senator James A. Reed of Missouri, which is worth repeating as illustrating the amount of information on the subject possessed by some "statesmen" who voted for the bill. He said: "I talked with a man who is manifestly more than half a nervous wreck. He used to pull the Twentieth Century

Limited between Chicago and New York. He told me that by actual mathematics it could be demonstrated that upon that run the engineer holding that throttle had to read and record in his own brain six signals every second. Eight hours a day is long enough for that kind of labor. Eight hours is long enough for the passengers to ride behind a man under that kind of a strain." Senator Reed has apparently been listening to some of the talk of the brotherhood leaders, and has received the impression that the trainmen "pull" their trains without much assistance from the locomotive. He would probably be much surprised if informed of the actual facts, viz., that the engineers on the Twentieth Century are changed seven times in twenty hours between Chicago and New York; that not one of them runs for more than four hours a trip, and that each of them receives considerably more than a day's pay for each trip of three or four hours that he makes on the Century. He might pursue his investigation further and find that five hours, or 100 miles, is the basis for a day's pay for all passenger engineers on the eastern roads and that practically no passenger ever rides behind an engineer who works as many as eight hours a day. We do not blame the Senator for becoming excited about the six signals per second, but a little "actual mathematics" would have shown him that a train running 60 miles an hour traverses 88 feet in a second and he is doubtless enough of a traveler to know that the scenery along the New York Central is not obscured by a signal every 14 feet. The artless credulity shown by statesmen of the Reed and La Follette type when they are talking to members of the labor unions is only equalled by the impossibility of getting into their heads a single real fact or truth regarding railway matters.

### FREIGHT CAR SITUATION GROWS WORSE

THE monthly bulletin of the Committee on Relations between Railroads of the American Railway Association for September 1, showed a gross shortage of 57,822 cars and a net shortage of 14,281 cars—the largest ever reported on that date. The only other net shortage previously recorded on September 1 was that of 1907, the first year of the compilation of these statistics, which was 10,400 cars. The car situation in that year continued to grow worse until October 30, when there was a net shortage of 86,811 cars. In commenting on the statistics for August 1 we pointed out the serious condition confronting railroads and shippers and urged their co-operation to make for the most efficient utilization of the car supply of the country. The September statistics indicate that there is further need for emphasizing what was said then. The statistics for car shortages and surpluses on September 1 for the last 10 years are as follows:

FREIGHT CAR SHORTAGES AND SURPLUSES ON SEPTEMBER 1				
	Surplus	Shortage	Net Surplus	Net Shortage
1916.....	43,541	57,822	.....	14,281
1915.....	191,309	6,300	185,009	.....
1914.....	165,244	1,918	163,326	.....
1913.....	73,576	15,270	58,306	.....
1912.....	36,047	26,297	9,750	.....
1911.....	88,866	4,325	84,541	.....
1910.....	60,022	9,293	50,729	.....
1909.....	110,576	3,899	106,576	.....
1908.....	222,632	1,418	221,214	.....
1907.....	21,639	31,679	.....	10,400

The number of cars in service cannot be increased by any further orders the railroads may place with car builders. The problem to be solved by all concerned is to make the most of the equipment available. Since the large car shortage of 1906 the railroads have improved markedly in maintaining a rapid circulation of equipment. It is believed that greater efficiency can and will be achieved by the carriers in eliminating delays in shipments. The shippers, who are most vitally concerned, can do as much, if not more, to prevent the car shortage from seriously impeding busi-

ness. Every effort should be made by shippers to keep cars moving by quick loading and unloading, and car space should be conserved by loading to capacity, if possible. No shipper can afford to assume a selfish attitude, as all cars held for an unnecessary length of time, either for storage purposes or on account of carelessness, will reduce the total number of cars available and make it increasingly difficult for all shippers to be supplied with sufficient cars.

### REVENUES AND EXPENSES IN 1916

STATEMENTS of the revenues and expenses of railways for the whole of the fiscal year 1916 covering roads having annual operating revenues above \$1,000,000 are now for the first time available. A compilation has been made by the Bureau of Railway Economics from the returns made by the railways to the Interstate Commerce Commission of the results for the month of June, thus completing the year.

Taken by themselves, or in comparison with the figures for the preceding year alone, these results seem to indicate an amazing degree of prosperity. Net operating revenue for June was \$103,451,443, or \$451 per mile of line, an increase of 24.6 per cent over the results for June, 1915. Operating income was \$89,912,522, or \$392 per mile of line, compared with \$311 per mile of line in June, 1915, an increase of 25.9 per cent. This was in the face of an increase in taxes from \$50 to \$58 per mile of line, or 17.1 per cent.

The annual figures, however, are of chief importance. Total operating revenues during the fiscal year 1916 amounted to \$3,396,808,234, an average of \$14,818 per mile of line. Operating expenses were \$2,220,004,233, or \$9,684 per mile; and net operating revenue was \$1,176,804,001, or \$5,134 per mile. Compared with the fiscal year 1915, the current year shows an increase in aggregate operating revenues of \$508,359,921, or 16.9 per cent per mile. Aggregate operating expenses increased \$188,807,393, or 8.6 per cent per mile; and net operating revenue increased \$319,552,528, or 36.4 per cent per mile. Taxes increased \$12,144,345, or 8.4 per cent per mile, leaving an increase in net operating income of \$307,251,118, or 41.7 per cent per mile. The mileage covered in these returns is 229,229 miles.

Considered by sections and upon the per-mile basis, the operating revenues of the eastern group of railways increased 20.3 per cent; operating expenses increased 10.8 per cent; net operating revenue increased 45.0 per cent; taxes increased 5.6 per cent; operating income increased 52.4 per cent.

In the Southern district operating revenues increased 15.5 per cent; operating expenses increased 4.8 per cent; net operating revenue increased 44.6 per cent; taxes increased 10.8 per cent; operating income increased 51.2 per cent.

In the Western district operating revenues increased 14.0 per cent; operating expenses increased 7.9 per cent; net operating revenue increased 26.5 per cent; taxes increased 10.4 per cent; operating income increased 29.5 per cent.

The average mileage represented is 1,403 miles in excess of the average mileage represented in the results for 1915.

The comparative results in detail are shown in the accompanying tabulation, Table I:

TABLE I—SUMMARY OF REVENUES AND EXPENSES FOR THE FISCAL YEAR 1916  
COMPARED WITH RESULTS FOR 1915  
Compiled from monthly returns of the railways to the Interstate Commerce Commission and covering roads of Class I, i. e., roads with annual operating revenues above \$1,000,000

Account	Amount, 1916	Per mile of line		
		1916	1915	Increase over 1915 Per cent
Total operating revenues.....	\$3,396,808,234	\$14,818	\$12,678	16.9
Freight .....	2,409,393,699	10,511	8,720	20.5
Passenger .....	673,472,119	2,938	2,765	6.2
Mail .....	60,057,967	262	250	4.8
Express .....	81,014,684	353	303	16.6
All other .....	172,869,765	754	640	17.8



Total operating expenses.....	2,220,004,233	9,684	8,915	8.6
Maint. of way and structures.....	405,389,892	1,768	1,603	10.3
Maintenance of equipment.....	558,777,771	2,438	2,189	11.4
Traffic.....	60,604,496	264	261	1.4
Transportation.....	1,096,632,406	4,784	4,464	7.2
General.....	79,392,991	346	327	5.8
All other.....	19,206,677	84	71	17.7
Net operating revenue.....	1,176,804,001	5,134	3,763	36.4
Taxes.....	146,754,477	640	591	8.4
Uncollectible revenues.....	807,720	4	3	41.7
Operating income.....	1,029,241,804	4,490	3,169	
Operating ratio—Per cent:				
1916.....		65.4		
1915.....		70.3		
Average mileage represented:				
1916.....		229,229		
1915.....		227,826		

The table shows an attractive column of increases, but in any real effort to determine the comparative prosperity of the railways the comparison will not be made with one of the worst of preceding years, as 1915 was, but rather with one showing a moderately satisfactory record. The fiscal year 1913 was such a period.

Comparison of the results of 1916 with those of 1913

of the preceding calendar year the record for June is highly satisfactory. The total operating revenues for the month amounted to \$298,907,697, an increase over 1915 of \$49,412,652. Operating expenses were \$195,456,254, an increase of \$28,396,467. Net operating revenue amounted to \$103,451,443, an increase of \$21,016,185. Taxes were \$13,411,539, an increase of \$2,043,229, leaving \$89,912,522 net operating income, an increase of \$18,992,863. On a mileage basis, operating revenues per mile averaged \$1,302, an increase of 19.0 per cent; operating expenses per mile averaged \$851, an increase of 16.2 per cent; net operating revenue per mile averaged \$451, an increase of 24.6 per cent; and net operating income per mile was \$392, an increase of 25.9 per cent. Taxes per mile increased 17.1 per cent. This summary covers 229,589 miles of line, or about 90 per cent of the total steam railway mileage of the United States.

The results are shown in detail in Table III.

TABLE II—SUMMARY OF REVENUES AND EXPENSES FOR THE FISCAL YEAR 1916 COMPARED WITH RESULTS FOR 1913

	1916		1913		Increase per mile over 1913	
	Amount	Per mile of line	Amount	Per mile of line	Amount	Per cent
Total operating revenues.....	\$3,396,808,234	\$14,818	\$3,057,089,811	\$13,781	\$1,037	7.5
Total operating expenses.....	2,220,004,233	9,684	2,118,529,173	9,550	134	1.4
Net operating revenue.....	1,176,804,001	5,134	938,560,638	4,231	903	21.3
Taxes.....	146,754,477	640	123,682,118	558	82	14.7
Operating income.....	1,029,241,804	4,490	816,257,651	3,680	810	22.0
Average mileage represented.....	229,229		221,829			

shows clearly wherein the very substantial betterment of the record for last year largely consists. With an increase in total operating revenues of only 7.5 per cent, the roads yet showed net operating revenue 21.3 per cent better and operating income 22 per cent better than in 1913, but the increase in total operating expense was only 1.4 per cent. In other words, the improved showing for 1916 is due overwhelmingly to the greater efficiency of operation which the railways themselves have been able to bring about, and for which they are entitled to all the credit, and only in a com-

By districts, operating revenues per mile of the eastern railways show an increase of 19.8 per cent as compared with June, 1915; operating expenses increased 20.9 per cent; net operating revenue increased 17.6 per cent; taxes increased 11.0 per cent; and operating income per mile increased 18.6 per cent.

In the Southern district, operating revenues per mile increased 18.4 per cent; operating expenses increased 6.4 per cent; net operating revenue increased 49.7 per cent; taxes increased 20.8 per cent; and operating income per mile increased 55.3 per cent.

In the Western district, operating revenues per mile increased 18.6 per cent; operating expenses increased 14.7 per cent; net operating revenue increased 26.1 per cent; taxes increased 22.0 per cent; and operating income per mile increased 26.9 per cent.

TABLE III—REVENUES AND EXPENSES—JUNE, 1916

Compiled from monthly returns of the railways to the Interstate Commerce Commission and covering roads of Class I, i. e., roads with annual operating revenues above \$1,000,000

Account	Amount, 1916	Per mile of line		
		1916	1915	Increase over 1915 Per cent
Total operating revenues.....	\$298,907,697	\$1,302	\$1,094	19.0
Freight.....	207,595,489	904	741	22.1
Passenger.....	61,548,716	268	246	9.0
Mail.....	4,999,116	22	20	5.4
Express.....	7,817,199	34	28	21.4
All other.....	16,947,177	74	59	24.7
Total operating expenses.....	195,456,254	851	732	16.2
Maint. of way and structures.....	38,580,593	168	150	11.8
Maintenance of equipment.....	48,954,679	213	176	21.2
Traffic.....	5,577,763	24	22	7.5
Transportation.....	93,831,731	408	349	16.9
General.....	7,316,048	32	29	9.5
All other.....	1,195,440	5	5	d 2.3
Net operating revenue.....	103,451,443	451	362	24.6
Taxes.....	13,411,539	58	50	17.1
Uncollectible revenues.....	127,382	1	1	...
Operating income.....	89,912,522	392	311	25.9
Operating ratio—Per cent:				
1916.....		65.4		
1915.....		67.0		
Average mileage represented:				
1916.....		229,589		
1915.....		227,966		

d Decrease.

paratively small degree to the increased volume of business, which, especially under present conditions, is a highly adventitious circumstance. It is also to be noted that the railways performed their duty as citizens by contributing 14.7 per cent more in taxes than in the year 1913, though their average rate of taxation in the earlier year was abnormally high.

The statistics from which the above general conclusions are drawn are shown in Table II.

Taken by itself as a month which ordinarily does not show as good results as some of the months in the last half

## MORE LIES ABOUT RAILWAY SALARIES

THE American Railway Employees' Journal, in its September issue, publishes a table giving what it pretends to believe are the approximate salaries paid to the general officers of 225 railroads, in figures which would turn about 99 per cent of these officers green with envy if they were foolish enough to believe that many of the others were getting such big pay. For the refreshment of those who do not read that valued publication, but who may appreciate this opportunity to view their salaries through a magnifying glass, the table is reproduced herewith:

RAILROAD OFFICIAL SALARIES, 225 RAILROADS

Per annum, gifts and expenses	Average
225 Presidents at.....	\$75,000 \$16,875,000
225 Assistant presidents at.....	20,000 4,500,000
225 General managers at.....	50,000 11,250,000
225 Assistant managers at.....	10,000 2,250,000
225 General superintendents at.....	12,500 2,712,000
225 Assistant superintendents at.....	5,000 1,125,000
900 Division superintendents at.....	5,000 4,500,000
900 Trainmasters at.....	3,600 3,240,000
225 General passenger agents at.....	40,000 9,000,000
225 General freight agents at.....	40,000 9,000,000
225 Traffic managers at.....	50,000 11,250,000
225 General attorneys at.....	25,000 5,625,000
225 Assistant attorneys at.....	10,000 2,250,000

"Good will" gifts will amount in one year to about \$83,577,000  
Annual expenses of these officers (low estimate)... 5,000,000  
25,000,000

Grand total..... \$113,577,000

"Of course, we know," the editor remarks, "that the exact

salaries are not known outside of the railroad official families, but enough is known to guarantee the above figures as being practically correct, though there are many railroad officials who are not enumerated in the above list, as we desire to stay within reason, considering the best information in hand."

As a matter of fact, the figures given are so wildly exaggerated that it is perfectly manifest that they are not based on any information whatever. The *Railway Age Gazette* is close enough to "railroad official families" to know that, with a very few exceptions on some of the largest railroad systems of the country, the salaries mentioned would be ridiculously absurd, even if stated as maxima instead of as averages. As to most of them, we have never heard of a single instance of an officer receiving a salary as high as that attributed to men of his rank in this table.

However, it is not necessary to take our word for it or to guess about it. The Interstate Commerce Commission has published sufficient data to show exactly what are the average salaries paid to railroad officers, and to demonstrate conclusively that even taking into consideration the high salaries paid to a very few, these averages are exceedingly modest. According to the Commission's latest detailed statistics on this subject there were 5,740 general officers on all the roads of the country in 1914, and their total compensation was \$21,338,995, an average of only \$3,717 a year. This includes all the classes of officers embraced in the Employees' Journal's list, and, in addition, some of the more highly paid classes not mentioned by it, such as vice-presidents, general counsel and the heads of the engineering and mechanical departments, as well as the majority who, of course, receive less than the average.

It will be observed that according to the estimate conceived in the flatulent imagination of the editor the first 450 officers, the presidents and their assistants, would have absorbed the entire compensation credited by the commission to all the general officers, leaving the remaining 5,290 with not a cent of income. The total salary list which he has concocted, excluding "gifts" and expenses, amounts to \$83,000,000. Omitting the \$9,000,000 of salaries which he credits to the superintendents, assistant superintendents and trainmasters, who are not general officers, leaves \$51,000,000, which is entirely fictitious, to be divided among the 1,800 remaining officers on his list.

There may be one or two railroad presidents who receive \$75,000 a year, but a large majority of those in charge even of 8,000 to 10,000-mile railroads receive far less than this, and the presidents of smaller roads do well when they get one-third to one-half as much as the figure mentioned. All the other salary figures given also are, as averages, wildly exaggerated. In most cases the classes of officers named receive only about one-fourth to one-half of the salaries stated, even on the larger roads.

A great many people like to answer almost any kind of an argument pertaining to railroad affairs with some poppycock about high salaries or watered stock, and they usually water the salaries even more than they claim the financiers have watered the stock. Many more waste time that might be more profitably devoted to getting their own salaries raised in figuring out how many automobiles they would buy if Mr. Rockefeller would only divide his reputed \$1,000,000,000 among 100,000,000 people. The editor of the Employees' Journal reminds the public "that the above salaries all come out of your pockets." We have already shown that three-fourths of them do not come out of anybody's pocket, but out of hot air. For his benefit, let us refer to statement No. 24 of the Interstate Commerce Commission's Statistics of Railways for 1914, which shows that the total compensation for the year of all railroad officers, both general and other, including some that are less than the wages of some of their organized subordinates, amounted to just \$45,586,150. This

is less than the amount which Congress has just handed to the train employees to persuade them to kindly refrain from striking.

To have abolished the salaries of the officers of all of the railroads would have reduced the operating expenses of the roads by about 2 per cent. This is about half of the estimate given by our imaginative contemporary for a partial list of officers for 225 roads. And the figures of the Interstate Commerce Commission are for 1,297 operating roads.

This article in the American Railway Employees' Journal illustrates the monstrous and vicious lies on which railway employees are constantly fed by a large part of the journals published for their especial edification, and indicates one of the principal reasons why there is so much discontent and disloyalty among certain classes of employees.

### SOME NOTES ON THE "BASIC EIGHT-HOUR DAY" QUESTION

THE questions raised by the wage controversy between the railways of the United States and their employees in train service have gotten into politics. Mr. Hughes, the Republican candidate for President, and Senator Borah and other leaders of the Republican party are vigorously denouncing the way in which the present national administration handled the crisis which this movement created. On the other hand, some of the Democratic newspapers and speakers are defending its course, and it is understood that when President Wilson takes the stump, he will do so. The *Railway Age Gazette* was discussing this matter before it ever got into partisan politics, and it intends to continue to discuss it until it is settled. This being the case, we feel that we should give some explanation of our position.

In the first place, this paper is not, and never has been, a political publication. It has been and is, however, devoted to the discussion of all matters pertaining to railway transportation, and when any such matter gets into politics it is within our province to continue to discuss it, to criticize those whose attitude toward it we consider unfair and unsound and to commend those whose attitude we consider fair and sound. In this connection it may be worth while to say that, so far have we been in the past from being antagonistic to the Democratic party or to President Wilson, that both the president of the Simmons-Boardman Publishing Company and the editor of the *Railway Age Gazette* voted for him for President in 1912.

In the second place, it is not true, as is so frequently charged, that the *Railway Age Gazette* is an organ of the railways. This paper is published by the Simmons-Boardman Publishing Company, a private corporation. Doubtless, the *Railway Age Gazette* is better informed regarding railway affairs in general, and the matters placed in controversy by this wage movement in particular, than any other publication, but at the same time it has no authority, direct or indirect, express or implied, to speak for the railways or any of them, and it has never done so and does not do so now. It tries to make the information it presents regarding railway affairs correct, and in this endeavor it receives the hearty co-operation of the railways, but the comment it publishes does not purport to express the views of any railway, officer or officers, and in many cases it is far from doing so. Some of our recent utterances on the methods used by President Wilson and Congress in dealing with the threatened strike have been condemned by some railway officers as unwise, and even unjust, but this paper is edited by American citizens who conceive it to be their duty to express their opinions regardless of the immediate consequences, and this is what we intend to continue to do.

The *Railway Age Gazette* in its issue for September 1 published an editorial entitled "Was It a Political Frame-



Up?" presenting a large amount of circumstantial evidence which seemed to indicate that the course of events leading up to the wage controversy passing into the hands of President Wilson, and the policy he adopted in dealing with it, were by no means accidental. This editorial has attracted widespread attention, and certain newspapers which are supporting Mr. Wilson for re-election have felt called upon to question the accuracy of our statements as well as the motives which prompted us in making them. The Knoxville (Tenn.) Sentinel refers to the editorial as a "Campaign Canard." It publishes a summary of it which first appeared in a leading newspaper of New York, and it refers especially to a letter written by a man in Washington on August 7 which was outlined in the editorial, without the author's name being given. It asks why the letter was not published until September 8, and says that the editorial "bears all the ear-marks of an anonymous and irresponsible libel."

If the Knoxville Sentinel was disposed to let its readers know all the facts indicating that there was a "frame-up," why did it not give all the evidence which the *Railway Age Gazette* presented, instead of confining itself to a single letter from which we quoted? Why, for example, did it not refer to the interview with Chairman Adamson, published in the Atlanta Constitution, while the matter was still in President Wilson's hands, in which Mr. Adamson stated that he had talked with the President four months before, and that the President decided at that time what he would do. Why did it not allude to the fact that the railways asked to have the wage controversy submitted to the Interstate Commerce Commission, and that the President wrote a letter to the president of the Boston Chamber of Commerce before he ever invited the two sides to the White House, going on record as being opposed to the plan which he knew that the railways would present to him? There were a number of persons mentioned by name in that editorial. Why did the Knoxville Sentinel confine its discussion to the single piece of evidence presented by us in connection with which no name was mentioned? If any one of the persons mentioned by name considers himself libelled he knows that he has recourse to the courts which try libel suits. The company which publishes the *Railway Age Gazette* is entirely responsible financially, and a proceeding in court would afford an excellent opportunity to compel a number of men to testify under oath as to whether there was a "frame-up" or not, and if so as to the details and participants.

The anonymous letter of which the Knoxville Sentinel complains is in no sense anonymous to the *Railway Age Gazette*. This paper knows when it was written, who wrote it and to whom it was written. The names of the writer and the recipient were not given because we were requested to keep this confidential, but, doubtless, in case of necessity they could be made available.

As to the relations between the national administration and the railway brotherhoods, certain highly interesting statements bearing on this phase of the matter appear in a circular sent out by the heads of the four labor brotherhoods from Washington on September 3, to all members of their organizations. In this letter they say: "On Friday, August 25, we requested the President to release us for the purpose of permitting the general chairman to go home and advised him that the railway officials then in Washington were familiar with our laws and customs and knew that until the general chairman left Washington for home there was no probability of a strike. We were requested to remain in Washington for at least 24 hours additional in the hope that the railway officials then conferring with the President would accede to his request. On Sunday, August 27, after securing from the President what we believed equivalent to a release, the general chairmen left for their homes, with the exception of a sub-committee consisting of one member from each of the associations for each of the organizations." The

statement adds: "When it became known to President Wilson that the day and hour had been fixed for the strike to become effective he called the four chief executives (of the brotherhoods) to the White House and appealed to us to postpone the strike until he could present the matter to Congress for the enactment of some law on the subject."

The assertions, first, that President Wilson was advised that until the general chairmen left Washington there was no probability of a strike, and, second, that they left only after securing from him "what we believed was equivalent to a release" clearly imply that the President understood the significance of the exodus of the general chairmen from Washington on August 26. If he did, why was he surprised when he learned that the strike had been ordered? The *Railway Age Gazette* does not undertake to answer the question. Perhaps he wasn't so surprised after all. Perhaps there was merely a misunderstanding between him and the brotherhood leaders as to the intentions of the latter. Perhaps they intentionally misled him and in issuing their circular letter were merely trying to "save their faces" with their followers.

This paper stated in an editorial in its issue of September 8, regarding the counterfeit eight-hour day law passed, that "it is certainly the first law of such a character relating to the hours and wages of any class of employees of private business concerns ever passed in the history of the world." Confirmation of this statement has come from an unexpected source. Warren S. Stone, grand chief of the Brotherhood of Locomotive Engineers, has sent a letter dated September 11 and marked "confidential" to all the members of his brotherhood. In this he says: "Regarding the passage of the law, never before in the world's history have any working men, or union of labor, placed on the statutes of any country a law giving to the toilers a basic eight-hour day. It stands without a parallel."

The Congress of the United States has passed a law providing for an eight-hour day for employees in the service of the government. It has passed a law providing for an eight-hour day for men employed by concerns doing work for the government on contract. These laws were used by President Wilson and others as precedents in the argument for the so called "eight-hour day" which the brotherhoods were demanding, but now that the brotherhoods have got the "basic eight-hour day" enacted into law, Mr. Stone says that there never was such a law passed and "that it stands without a parallel."

Of course, the feature of it which stands without parallel is that it does not provide for an eight-hour day at all but, as Mr. Stone says, for a "basic eight-hour day" and that, therefore, although it purports to fix a working day of eight hours, it will not reduce the working day of a single human being, but will merely give those for whom it was passed an increase in wages at the expense of the public. It will be noted that in his letter Mr. Stone does not give Congress any credit for having passed the law, but implies that it was placed on the statutes by the labor unions. As to this matter he is quite right. Congress was merely the amanuensis of the labor unions.

In his letter to his followers Mr. Stone adds that it has been arranged to send "a reprint from the Congressional Record of September 1 and 2 of all the speeches made in both the House and Senate by our friends and enemies for and against the enactment of a law. We do this," he adds, "not in the interest of any political party but in order that you may have the true facts in the case. We believe the time has arrived when labor should know who is friendly to its interests and who is not. Important legislation will take place at the next session of Congress. It is important to you that men be elected who are friendly to you."

Of course, Mr. Stone did not send this letter out in the interest of any political party. Perish the thought! And,

of course, the fact that the heads of the brotherhoods are sending out circular letters to their followers strongly indicating to them how they should vote and that officers of their grand lodges are going all over the country during the political campaign attending lodge meetings and telling how the basic eight-hour day law was put over and indicating specifically who were the "friends" and the "enemies" of the brotherhoods at Washington has no political significance whatever. In fact, it is conclusive disproof of any imputation that there was a political frame-up, the terms of which the national administration on one side and the labor brotherhoods on the other have been diligently carrying out. Meantime, who do the other 80 per cent of railway employees and the general public think were their "friends" and their "enemies" when this law "without a parallel" was passed?

The *Railway Age Gazette* in a recent editorial recommended the entire abolition of the mileage basis of pay in train service. It contended that the railroads should take the stand from now on that if they must pay a day's wage for eight hours' work they must have at least eight hours' work for a day's pay. The Hartford (Conn.) Courant commented on this statement as follows:

"It has been said that the hours of employment in railroad service depend so much upon the length of the run that it is not always practicable to define the length of the day, but apparently this is a fallacy and, if it is, it should be discarded."

It appears that the meaning of our remarks was not clear to our contemporary and should be explained. It is not practicable in railway train service to establish an arbitrary working day of eight hours. The distances between the terminals between which trains must run vary considerably and the speeds at which trains can be run between the same terminals also vary greatly. Suppose, for example, we have a distance between two terminals of exactly 100 miles. A passenger train may easily make this run in three hours, and if it does the train crew under existing contracts earns a day's wage in three hours, because wages in train service are based on miles as well as hours. A through freight train may require eight hours to get over the run. A way freight train may require 12 hours. Now, it would be physically impracticable to reduce the running time of the way freight from 12 hours to eight hours, and if under the new law its running time should remain unchanged the railway would pay the train crew a day's wage for the eight hours it was on the road and half a day's wage for the remaining four hours. To the crew of the through freight which made the run of 100 miles in eight hours it would pay exactly a day's wage. But how about the crew of the passenger train which now makes the run in three hours and gets a full day's wage for it? How about the crew of a freight train handling perishables which may run the 100 miles in six hours, and under present arrangements gets a day's wage for it?

What the *Railway Age Gazette* meant was not that the running time of the way freight should or could be reduced to eight hours, but that its train crew should be paid overtime for the extra four hours, and that at the same time the working day of all employees who now receive on the mileage basis a day's wage for working less than eight hours should promptly be increased to eight hours a day. If the railways must pay a freight conductor a day's wage for eight hours work, why should they not be entitled, if he runs 100 miles in six hours, or if a passenger conductor runs 100 miles in four hours to compel them both to stay on the job until they have worked eight hours? Is not eight hours work for a day's pay the natural corollary of a day's wage for eight hours work?

It is an interesting question whether the "basic eight-hour day law" does not, as a matter of fact, require the railways to exact eight hours' work from every employee directly concerned in the operation of trains. This point is discussed in an address made by Samuel O. Dunn at the recent dinner of the Railway Signal Association, an abstract of which is pre-

sented in another column. There are some precedents bearing on that phase of the subject which are important, but which are not alluded to in that address. In 1907 Congress passed the "hours of service" law, the intention of which was absolutely to limit hours of work in train service. This act made it unlawful for any train employee concerned in the operation of trains "to be or remain on duty for a longer period than 16 consecutive hours," and provided that no train despatcher or telegraph operator sending orders pertaining to train movement should be "required or permitted to be or remain on duty for a longer period than nine hours in any 24-hour period." Here Congress meant to fix the *maximum* number of hours that these employees could be kept at work, and it expressly provided that they should not be kept on duty for longer periods than those mentioned.

If in passing the "eight-hour basic day law" it had meant to provide merely that *no longer period* than eight hours should be taken as the basis for computing daily wages, it is to be presumed that in accordance with the precedents set in the hours of service law it would have said so. But it did not say so. It said not that eight hours should be taken as the maximum basis, but that it should be taken as the exact basis—both minimum and maximum.

Suppose, now, that a passenger conductor makes a run of 100 miles in three hours and a railway should attempt to pay him a day's wage for doing so. Is it not clear that it would not be taking eight hours as a basis and that, therefore, it would be violating the law?

The *Railway Age Gazette* has said that if this law is maintained by the courts, the railways ought to exact at least eight hours work before paying any man a day's wages. It looks very much, from a more careful reading of the law, as if they not only ought to, but that they are required to.

We suggest, in view of these facts, that Mr. Stone and his fellow labor leaders might well put the soft pedal on boasts about having secured the enactment of a law "which stands without a parallel" until they find out what it really means. Perhaps if it is found that it means that passenger engineers in Eastern territory who are now on a daily basis of five hours or 100 miles, and passenger engineers in Western territory who are now on a basis of five hours and forty minutes or 100 miles, have got to begin working eight hours before they can get a day's pay, there will be some feeling within the brotherhoods which will make both their members and Mr. Stone much less happy than he apparently was when he wrote his letter!

## NEW BOOKS

*Universal Directory of Railway Officials, 1916.* Compiled under the direction of S. Richardson Blundstone, editor of the *Railway Engineer*. Bound in cloth; 604 pages; size 6 in. by 9 in. Published by the Directory Publishing Company, Ltd., 15 Farrington Avenue, London, E. C. Price, 10s.

Now that American railway supply firms are seeking a market for their goods on the railways of foreign lands, this book will have an added use that was perhaps not contemplated by its compilers. The book is very similar to our own Pocket List, but, of course, has a much wider field. It contains the names of all the railways of the world, arranged alphabetically by countries and continents. For each railway it gives the following information: mileage, gage, equipment in cars, locomotives, motor buses, steamboats, lighters, etc., as well as the names and addresses of all the principal officers. To facilitate reference there is an alphabetical list of all the railways of the world and a similar list of all the officers whose names are given in the book.

The present number appears in the twenty-second year of publication. Owing to the war, it is not quite complete, the sections relating to the railways of Austria, Belgium, Bulgaria, Germany, Hungary, Serbia and Turkey having been omitted and those relating to the railways in certain parts of France and Russia not having been corrected.



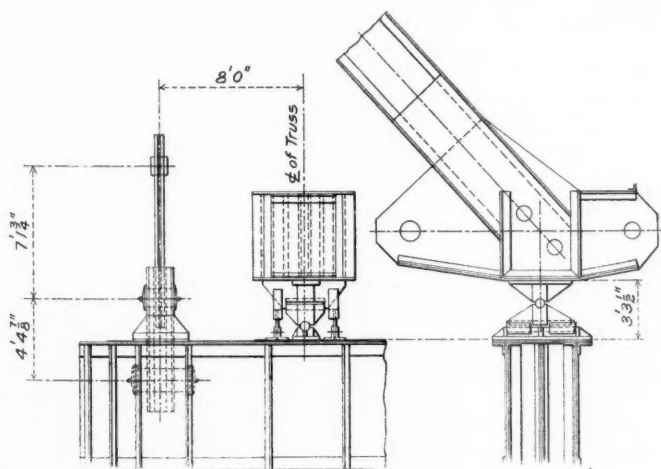
# The Cause of the Quebec Bridge Disaster

Failure of Bearing Casting Allows the Suspended Span to Slip from Its Supports into the St. Lawrence River



The Span at the Moment of Collapse, Showing the Southwest Corner Under Water Before the Other Three Had Left Their Supports. Photo copyrighted by International Film Service.

WHEN the suspended span of the Quebec bridge fell into the St. Lawrence river on September 11, it was assumed that no evidence as to the cause of the accident was left above the water. Later investigations of the hoisting equipment have shown the contrary to be true and reveal exactly how and why the span fell. These investigations show conclusively that the collapse was due to the failure or breaking of the southwest supporting bearing allowing the span to drop down on the hoisting girder. The impact set up a rocking movement in this girder, which was kicked back in a southwesterly direction, and allowed the span to slip entirely from its support at this point. Imme-



Detail of the Lifting Girder, Showing the Casting That Failed

diately afterward it pulled or twisted away from its other supports and disappeared into the water. The manner of failure can best be shown by first describing the hoisting equipment.

## THE HOISTING APPARATUS

The hoisting apparatus consisted of a pair of supporting girders 6 ft. 11½ in. deep and 25 ft. long, braced together by bearing and pin-connecting diaphragms and cover plates which were placed under each corner of the span. The plate-lifting chains were pin-connected to these girders and were also riveted to the same girders and passed up through

a set of upper and lower jacking girders to which they were alternately pin-connected as the jacks between the upper and lower jacking girders were operated. These jacking girders were each made up of two plate girders 9 ft. deep and 22 ft. 6 in. long, connected by cross bearing diaphragms and cover plates. The upper jacking girders were movable and slid up and down in the stiff built-up guides which were riveted into the lower jacking girders, passed up through the upper jacking girders and connected to the stiff hangers which led on up to the upper supporting girders. These upper supporting girders were placed on top of the CUO joints of the cantilever arms, and were of similar construction to the lower supporting girders. The load of the span was transferred to the upper and lower supporting girders by means of cast steel rocker bearings designed to allow the span to sway in any direction under the influence of external forces from the current and wind which might have acted while the span was being hoisted.

The total load carried by the hanger chains while lifting the span was 5,147 tons. The supporting girders, hanger chains, jacks and jacking girders and all their connections were designed throughout to carry this lifted load plus 20 per cent impact.

The work of hoisting was done by eight 1,000-ton hydraulic jacks, placed two at each corner of the span. These jacks were operated under a pressure of 4,500 lb. per sq. in., the water being supplied to them by a pair of direct-acting double plunger pumps operated by compressed air and located on the center line of the bridge floor at the ends of the cantilever arms. Valves placed in the feed pipe lines in front of the pumps controlled the water supply sent to each corner of the span. By this means and with the aid of an indicator, which showed any difference in elevation between the two sides of the span, it was kept approximately level. Another set of valves with a similar indicator attachment was located in front of each set of jacking girders and controlled the water supplied to each separate jack, by means of which the jacking girders were kept horizontal.

At 8:30 a. m. the tide had dropped sufficiently to make the pins bear at the ends of the slotted holes in the hanger links and the links themselves had straightened out. At 9 o'clock the tide had fallen about 1½ ft. further and the first jacking operation was commenced. Each operation of the jacks lifted the span 2 ft. During the lifting or upward stroke the 12-in. pins engaged the hanger chains through the dia-

phragms in the upper jacking girders. At the finish of the stroke the pins were entered in the diaphragms of the lower jacking girders to engage the hanger chains. The upper pins were then removed, the jacks and upper girders lowered, the upper pins again entered, the lower pins removed, and the jacks again operated. The first operation of the jacks was completed in 15 minutes; the second and third operations in about 13 minutes each. At the end of the third operation the span had lifted clear of the scows and the scows had drifted away and were taken care of by the waiting tugs, leaving the span supported entirely by the hoisting apparatus on the ends of the cantilever arms.

#### THE COLLAPSE OCCURS

The sixth stroke had been completed and while the upper jacking girders were in the act of being lowered the cast steel bearing on the lower lifting girder supporting the span at the southwest corner failed. The span slipped off the support at this corner, and the sway and lateral bracing then collapsed, precipitating the span into the water. As it fell it turned over to the west and plunged to the bottom of the river, where it lies a mass of twisted steel, 200 ft. below the river surface.

The casting which failed and was the cause of the dis-

the upper shoe, supporting an end post of the suspended span.

From examinations of the hangers since the accident, it is evident that the intermediate or roller casting under the southwest hanger gave way. The fracture of the front lower pin bracket of this rocker threw the lower pin out of service and the concentration of the 1,200-ton load on the remaining pieces crushed and tipped the remainder of the rocker, at the same time kicking out the swinging girder and allowing the corner to fall. With the supports at this corner gone,



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**The Cantilever Arm With the Mooring Truss Ready for Attachment to the Suspended Span**

aster was a universal joint required during the erection of the span and during the time it was supported on falsework awaiting movement to the bridge. As shown in one of the drawings, it consisted of a steel shoe casting with a pin groove extending parallel to the bridge, carrying a pin  $9\frac{1}{2}$  in. in diameter and  $46\frac{1}{2}$  in. long. Another steel casting was supported on this pin and it in turn carried a transverse pin 8 in. in diameter and  $26\frac{3}{4}$  in. long on which rested



**The Suspended Span In Position Ready for Hoisting. The Load Is Still on the Scows**

the long, heavy span could not maintain its equilibrium and it dropped into the river.

As the load of the span was suddenly released from the ends of the cantilever arms these arms whipped back, vibrated and swayed to such an extent that a number of the workmen, engineers, and visiting members of the engineering profession, assembled to view the hoisting of the span, were thrown off their feet. These vibrations lasted for some seconds, and then gradually subsided, leaving the anchor and cantilever arms in the same condition as they were before they had taken the weight of the span. Check elevations have since been made and it has been established, after examination, that these arms are apparently uninjured in any manner, after having been subjected to a more severe test than would have been possible under ordinary service conditions.

The workmen who were on the suspended span when it fell were thrown into the water. Of these a number were saved by the small boats, but some 10 or 11 have not since been accounted for.

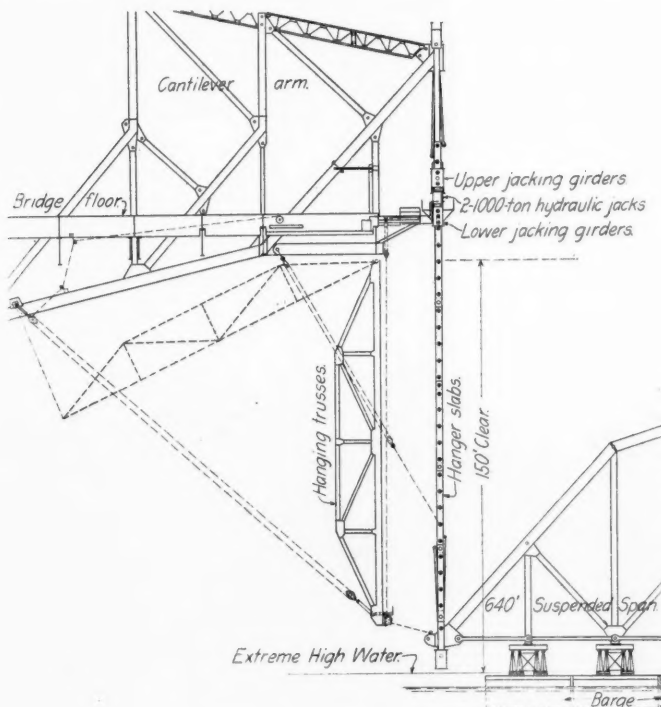
#### ERECTION OF THE SUSPENDED SPAN

The erection of the north shore anchor and cantilever arms of the Quebec bridge was completed by the close of the season of 1915, the greater part of the steel for the anchor arm having been placed during 1914. The south shore anchor arm, including the main vertical post over the main pier, was also completely erected during 1915; and the assembling of the south shore cantilever arm proceeded as



soon as the season of 1916 opened. This arm was completed by July 28, 1916, when the main bridge was practically ready for the floating in and hoisting into place of the 5,000-ton suspended span.

The erection of the suspended span was carried on at the same time as the erection of the south cantilever arm, the erection site being located in the shallow waters of Victoria cove on the north shore of the St. Lawrence river, where the bed of the river is exposed at low tide. At this point there is a daily range of from 12 to 16 ft. between high and low tides. For this reason it was necessary to build a trestle



The Hoisting Apparatus

approach to the span, about 750 ft. long. This approach was made up of plate girder spans supported on wooden trestle bents, the spans varying in length from 75 ft. to 85 ft., centre to centre of supporting bents. The plate girders used for this approach track were the same ones that had been used on the anchor arm floors to carry the traveler track during the erection of these arms.

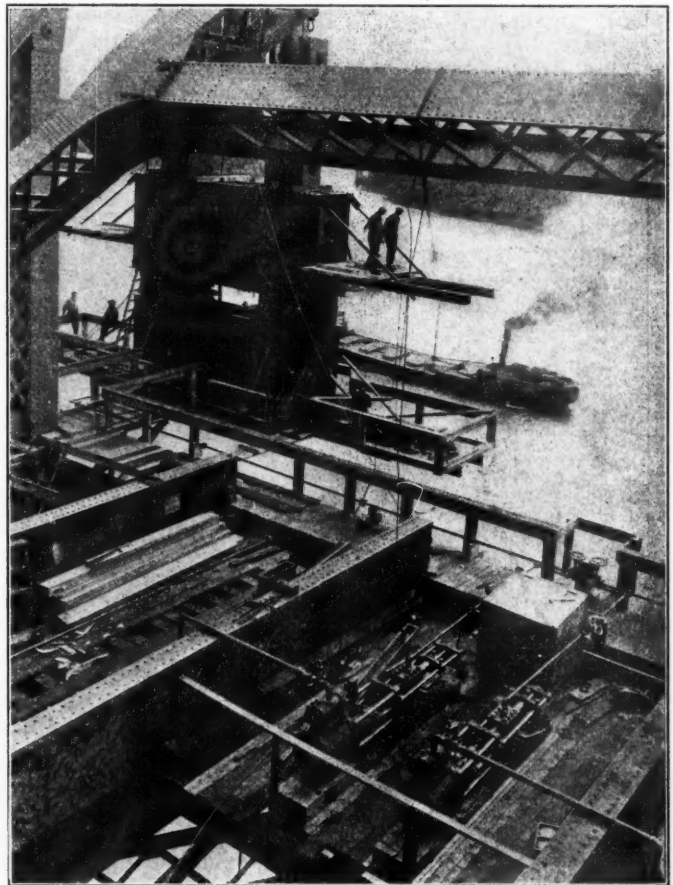
The suspended span trusses were of the Pratt truss design with curved top chords. The length, centre to centre of end eyebar suspenders, was 640 ft. and the width centre to centre of trusses was 88 ft. The trusses were 70 ft. deep at the hip and 110 ft., centre to centre of chords at the middle of the span. The main panel lengths varied from 65 ft. at the end of the trusses to 80 ft. for the centre panels. Each of the main panels was divided into sub-panels, the sub-panel floor load being transferred to the main panel points by means of a sub-tension vertical and a sub-compression diagonal in each main panel. The main diagonals of the web were primarily tension members, while the main verticals were designed to take principally compression stresses, except the verticals coming in at the hip joints, which were main tension members. Reversal of stress under live load occurred in the three main panels at the centre of the span.

Like the main bridge, the suspended span was designed to carry a double track railway floor, with two 5-ft. sidewalks. The tracks, which were spaced 32 ft. 6 in. centre to centre, were carried by four lines of through plate girders with sub-floorbeams and eyebeam track stringers. On the outside of each track, and carried by cantilever brackets at-

tached to the outside through plate girders, were located the two 5-ft. sidewalks with handrails and 3½-in. concrete floors.

For the bottom chords and for the first main tension diagonals of the web, eyebars were used; all the remaining truss members were of built-up construction. The top chords were pin-connected at all the main panel points with shop or field splices at the intermediate sub-panel points. The web members were connected and riveted together at the main panel points of the top and bottom chords by means of gusset plates which engaged the pins of the top and bottom chord members. The bottom and top lateral systems, as well as the sway bracing located at each main compression vertical, were of the double intersection type with a floorbeam or strut at each panel point, each member being designed to take either tension or compression. All truss members and all members of the lateral system were manufactured, shipped, and handled, in sub-panel lengths.

Nickel steel was used for all parts of the trusses and bracing, except for the top lateral and sway bracing systems and the minor truss members, which carried no moving load stresses, where carbon steel was used. The greatest area of the top chord members was 434 sq. in. and in the centre panel of the bottom chord eyebars 311.5 sq. in.



The Jacking Girders Showing the 1000-Ton Jacks in Place

The span was supported during erection on staging bents located under each panel point. Each bent was built of two columns, spaced 6 ft. centre to centre and tied together by lacing angles and diaphragms. The bents rested on concrete foundations which had been prepared for them during the season of 1915 at periods of low tide. The preparation of these foundations and also those supporting the bents for the approach tracks was slow work, owing to the fact that progress could only be made during two or three hours of each day when the bed of the river was exposed by the falling tide.

The excavations for the foundations were mostly in rock, red shale, and sillery.

The outside columns of each bent were designed to take the weight of the bridge material, the reaction of the traveler from its own weight, and the lifted loads, and the vertical reaction from the wind on traveler and span. The inside columns of each bent were assumed to take care of the overturning effect from transverse wind shear applied at the top of the bent. Bracing placed in the plane of the outside columns of the bents, in the end panels and centre panels, resisted the longitudinal wind on the traveler and span.

The lengths of the members of the trusses as manufactured in the shop were calculated so that the trusses would have their geometrical shape after the span was erected and carrying its full dead and live loads; that is, the main truss members would be straight between main panel points, except for the effect of end moments due to pin friction and the consequent prevention of free turning on the pin. On account of this shop camber the faced ends of the top chords, where these members were spliced in the field, would not come to

the end staging bents, which then carried the full dead load, the nuts on the bolts in the top chord splices were loosened and the bearing surfaces allowed to come squarely together, the lengths of the sub-struts supporting the chords at the splices having been calculated so that the chords would be straight between main panel points for this condition. The chord splice material was then fully riveted.

#### FLOATING THE SPAN

As soon as the suspended span was completely riveted up and rested on its end supports, the six scows which were used to transport the span to the site of the main bridge were floated into place under panel points L1, L2, L3, L15, L16 and L17, and, as the tide lowered, they came to a bearing on the concrete and timber beds provided for them. These scows were provided with a number of bottom valves of sufficient flowing area to allow the water to enter or drain out as fast as the tide rose or fell. These valves were opened as soon as the scows were placed in position under the span and remained open until the time of floating off arrived in order



Rescuing Survivors After the Collapse

a square bearing when first put in place in the span. In order to obtain a square bearing at these points before riveting on the splice material, a special method of erection had to be adopted.

Sandjacks were placed on top of the outside columns of the staging bents, at the main panel points, the main vertical posts of the span bearing on these jacks. At the sub-panel points, and between the inside columns of the staging bents and the floorbeams, wood blocking was used in place of the sandjacks. The elevations of the bottom chord panel points during erection were calculated to suit the manufactured length of the truss members, or, in other words, the camber of the truss. The span being completely erected, except for the riveting of the top chord splices, which had only been bolted up with 50 per cent of the field holes filled with bolts, the timber blocking between the floorbeams and inside columns of the staging and also between the sub-verticals and outside columns of the staging was removed, and the sandjacks were lowered until the span rested on its bearings at

that the span would not be disturbed by the daily rise and fall of the tide.

These scows were specially designed to suit the requirements of loading and the possible condition of the surface of the river during floating in operations; also so that they could be used for freight carrying purposes after their work of floating in the suspended span had been completed. In order to reduce the effect of wave action on the sway and lateral bracing of the span while floating, long and narrow scows would preferably have been used. The scows as built were 32 ft. 5½ in. wide, 164 ft. 6 in. long, and 11 ft. 7½ in. draft over bilge timbers. The framework for each scow is made up of three longitudinal steel trusses, spaced 10 ft. 6 in. centre to centre and braced together by four watertight steel bulkheads, with intermediate cross-frames between the bulkheads, spaced 8 ft. 4 in. centre to centre. The timber covering is made up of 11½ in. by 5½ in. cross beams, spaced 2 ft. 9 in. centre to centre and bolted to the steel framework of the scow and 4-in. planking spiked to these cross beams



with three  $\frac{3}{8}$ -in. by 7/16-in. boat spikes at each intersection.

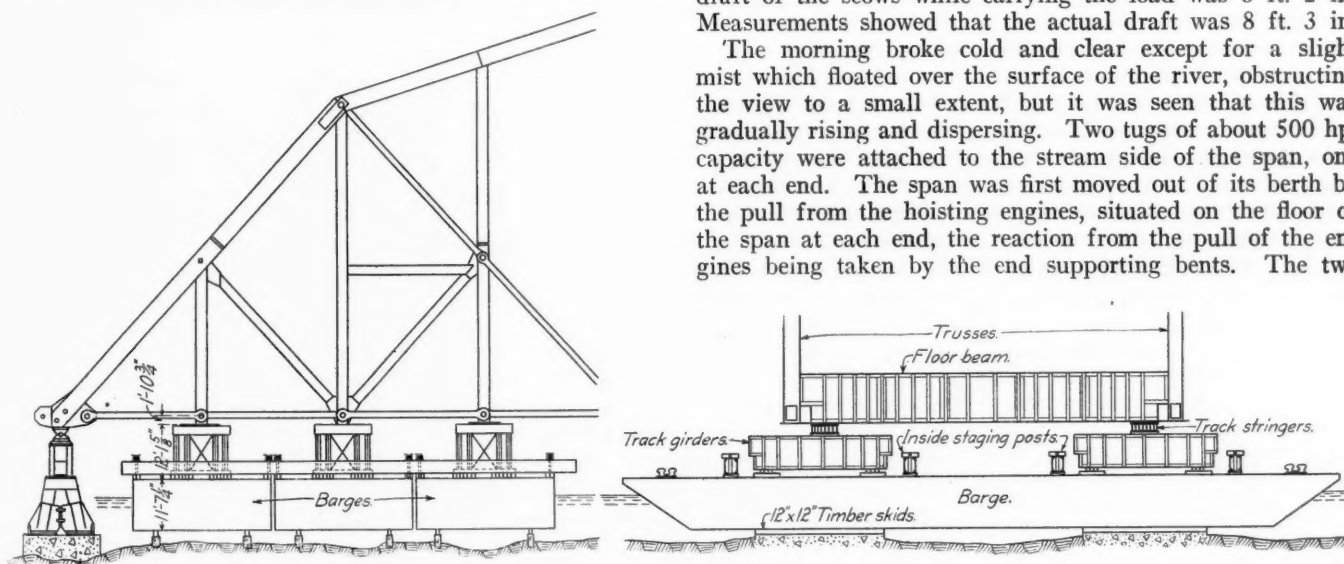
The load of the suspended span was transferred to the bulkheads by means of the cross girders and eyebeams. The bulkheads transferred this load to the longitudinal trusses of the scows which distributed it over the length of the scows. These eyebeams and cross girders were part of the permanent floor material of the span, the greater part of the floor steel and the railway track floor, except the main floorbeams, being left off during the operation of floating in and hoisting into place of the span. This floor material was to be placed afterwards by means of derrick cars. After placing these cross-girders and eyebeams in position they were firmly shimmed against the bottom flanges of the floorbeams from which they received their load. The total load carried by one scow under these conditions was 970 tons, distributed over four bulkheads; the draft of the unloaded scow was 1 ft. 6 in., and when carrying the load of 970 tons, 8 ft. 2 in.

The stresses in the truss members of the span while it was supported entirely by the scows were such that a tension connection had to be provided at the hip joints of the trusses. The truss members directly over the scows were also specially designed and stiffened to take reversal of stress while floating the span, and the bottom chord eyebeams in the

and that a centre of high pressure existed over the provinces of Ontario and Quebec, the barometer reading in these localities being 30.4 in. The forecast for wind was a fresh breeze from the northeast of about 20 miles an hour velocity. On the evening of September 10, at 11 p. m., the report came from Toronto of the existing meteorological conditions and the wind velocity forecast for the morning of September 11. The centre of low pressure had moved from Saskatchewan to Brandon, Manitoba, in twelve hours, the barometer reading being 29.18 in. The centre of high pressure was still over Ontario and Quebec, the barometer reading being 30.46 in., and the forecast for the wind was moderate easterly winds with a velocity of from 12 to 14 miles per hour. The electric storm detector at the bridge site showed no indications of any coming disturbances, and the night was clear and cold, with practically no wind. It was, therefore, decided to float the span.

The scows had all drained by 11 p. m. on September 10 and the tide was still falling. The valves in the bottom of the scows were, therefore, closed between 11:45 and 12:45 o'clock midnight. The tide gradually rose and at 3:30 a. m. the span was floating free of its end supports, the whole structure being carried by the scows. The calculated draft of the scows while carrying the load was 8 ft. 2 in. Measurements showed that the actual draft was 8 ft. 3 in.

The morning broke cold and clear except for a slight mist which floated over the surface of the river, obstructing the view to a small extent, but it was seen that this was gradually rising and dispersing. Two tugs of about 500 hp. capacity were attached to the stream side of the span, one at each end. The span was first moved out of its berth by the pull from the hoisting engines, situated on the floor of the span at each end, the reaction from the pull of the engines being taken by the end supporting bents. The two



Part Elevation and Section of the Suspended Span in Position on Scows

two main panels at each end of the span were stiffened temporarily with longitudinal timbers and transverse blocking and bolts.

The three scows at each end of the span were braced and lashed together by four transverse girders, spaced about 42 ft., centre to centre, over the length of the scows and continuous over the three scows. These girders were connected to the steel cross frames of the scows, the girders and connections being designed to resist the stresses arising from the action of a 4-ft. wave having a length of about 40 ft. from crest to crest.

To keep the span in its position until the final decision to float away was made, timber bents were placed between panel points LO and L18 and the adjacent scows, and also bents on the shore side of the span against which the scows guided themselves as the span was raised from its supports. These timber bents were loaded with rails to take care of the friction arising from the rubbing of the scows.

It had been decided to float the span on the morning of September 11, provided suitable weather conditions were predicted and existed. On September 10, at 11 a. m., the Weather Bureau at Toronto telephoned that there was a centre of low pressure over the western provinces, Saskatchewan in particular, the barometer reading there being 29.4 in.,

tugs took up the slack in their towing cables of about 3 in. in diameter at 4:38 a. m. and the span gradually moved out at the rate of about 10 ft. a minute. By 4:50 a. m. the span had moved 88 ft. and was clear of the supporting bents. Four minutes later the shore lines were cast off, except the one leading down stream which held the span against the four-mile upstream tidal current, and as the span moved out it swung about the anchorage point of this line as a centre. As the immense structure floated out there was not the slightest indication of any swaying or rocking motion, and it was practically as steady as if it had been resting on a solid foundation.

At 5:05 a. m. two more tugs took hold of the barges on the stream side of the span, one at each end. These tugs were of approximately 500 hp. capacity. At 5:13 the span had pivoted about the anchorage point of the mooring line until it was at an angle of approximately 45 deg. with the line of flow of the current. The mooring line was then cast off, and at this time a fifth tug of 1,000 hp. capacity with a  $4\frac{1}{2}$  in. hawser took hold of the middle of the span on the stream side. Five tugs were now holding the span against the pull of the tidal current, the tide being now at full flood and running up stream with a velocity of 4 or 5 miles per hour. Two more tugs of 500 hp. capacity prepared to take hold of

the scows on the opposite or upstream side of the span. Communication with each end of the span and the centre was kept up by telephone and the orders to the tugs were given by megaphone. At 5:22 a. m. the span was practically normal to the line of flow of the current, and began to float upstream under the restraint of the five tugs on the downstream side. At 5:23 the sun rose over the eastern hills and the mist gradually dispersed before a slight east breeze of about two to three miles per hour velocity. By 5:30 the span was moving upstream at a rate of about two miles an hour, the velocity of the current being about four miles an hour.

Ranges placed at measured distances apart along the shore recorded the advance and rate of progress of the span on its journey to the bridge site. The first range was passed at 5:33 a. m. and the second at 5:44 a. m. The distance between these ranges was 1,700 ft. and the rate of speed of the span had been  $1\frac{1}{4}$  miles per hour. The distance between the second and third ranges was 2,460 ft. and the third range was passed at 5:53, the average speed of the span between these two ranges being 3 miles per hour. The distance to the fourth range was 4,200 ft. and it was passed at 6:05 a. m. at a speed of about 4 miles per hour. A float thrown out in front of the span showed the speed of the current to be between 4 and 5 miles per hour, and the span followed this float very closely until the seventh range was passed. At the seventh range the speed of the span was checked and it was brought practically to a standstill for a moment in order to show that the tugs had perfect control of the floating structure. It took approximately 3 minutes to stop the span. The span was then about three-quarters of a mile from the main bridge site, and from then on was allowed to move slowly forward at a speed of about 2 miles an hour, and as it approached the space between the two cantilever arms it was lined up parallel to the main bridge by ranges on the shore and normal to the bridge by centering targets suspended by wires at the middle of the opening between the cantilever arms.

At 6:50 a. m. the span arrived at the bridge site and the mooring lines were connected up to the cast steel snubbing posts located at each of the four corners of the suspended span. These  $1\frac{1}{4}$  in. steel mooring ropes, eight in number, four at each end of the span, were calculated to take a pull of 75,000 lb. each and passed through sheaves at the lower corners of the mooring trusses and from there up to a nine-part  $\frac{3}{4}$ -in. wire rope tackle which led back to the drums of the derrick hoists, situated on the bridge floor at the ends of the cantilever arms. The span was pulled directly under its final position in the bridge by means of these  $1\frac{1}{4}$ -in. ropes and the derrick hoists. The hanger lifting chains which were to raise the span were then lowered and connected through the slotted holes at the lower ends to the pins at the top of the short hanger links connecting to the supporting girders under the end corners of the span. This connection was made at 7:40 a. m., when the current was practically at zero—that is, the tide had turned and the current was about to change from a westward to an easterly flow.

The mooring frames were made up of two steel trusses braced together, the bracing being designed to take a transverse pull from each end of the suspended span of 300,000 lb. They were pin-connected to the cantilever arm floor beams so that by means of the nine-part  $\frac{3}{8}$ -in. wire rope tackle leading from the lower corners of the trusses to the connection to the floor between panel points CF5 and CF6 of the cantilever arm and from there to the main hoists, situated on the bridge floor, they could be raised so as not to obstruct the channel unnecessarily.

The hanger chains at each corner of the span were made up of four slabs to each chain, each slab being built up of two 30-in. by  $1\frac{1}{8}$ -in. carbon steel plates. The slabs were manufactured and shipped in lengths of about 30 ft. centre to

centre of end connecting pins. They were controlled, after being suspended from the jacking girders located at the elevation of the bottom chords of the cantilever arms, by means of a two-part tackle connecting to the cantilever arm trusses at the panel point CL2. The hoisting apparatus and the methods followed in jacking the span are fully described earlier in this article.

## THE "EIGHT-HOUR" LAW IN THE POLITICAL CAMPAIGN

By H. F. Lane

WASHINGTON, D. C., September 19, 1916.

As was expected, the action of the national administration in allowing itself to be bluffed—if it was bluffed—by the railroad train service brotherhoods into legislating them an increase in pay for from seven to ten months, under the guise of an "eight-hour day" law, is coming to be one of the principal issues in the presidential campaign. Although the combined forces of Samuel Gompers and the Democratic party were not able to make much headway with it in Maine, it has been given out that President Wilson is preparing to meet the issue at once and will seek to show, either in a speech or in a letter to some inquisitive member of the Democratic party, that the law will permanently establish an eight-hour day as the basis for work in railroad train service. It is announced that he intends to make clear that he will not be satisfied until Congress enacts into law the remainder of the program which he recommended to it, including a plan for reimbursing the roads for the additional expense involved and for making a strike illegal pending an investigation. Judge William L. Chambers, of the United States Board of Mediation and Conciliation, was expected to confer with the President at Shadow Lawn this week to assist him in preparing his speech or letter on this subject. Meanwhile, it is stated, the President has already begun the consideration of the personnel of the board of investigation which is to study the effect of the new law for a period of six to nine months.

Apparently the President is finding that the particular method which he saw fit to adopt for the purpose of averting a strike possesses some of the elements of a boomerang, and that the publicity which has been given to the difference between an eight-hour day and an eight-hour basis for the payment of wages has rendered the slogan "eight-hour day" rather inadequate to the purpose in hand. He has, therefore, decided that it will be expedient to shift the issue slightly from what has been done to what may be done in the future—as usual, after election.

Officers of the brotherhoods are already seeking to show their gratitude by appealing to their members to support Congressmen who voted for the law. They do not appear to be showing the same solicitude for those who said they were in favor of a real eight-hour day, but that they were not in favor of legislating an increase in wages for a favored few of the railroad employees. Warren S. Stone, grand chief of the Brotherhood of Locomotive Engineers, has issued a circular letter to members of that organization promising to send them reprints from the Congressional Record of speeches made at the time of the passage of the law. "We do this," he said, "not in the interest of any particular party, but in order that you may know the true facts in the case. We believe the time has arrived when labor should know who is friendly to its interests and who is not. Important legislation will take place at the next session. It is important to you that men be elected who are friendly to you." W. G. Lee, president of the Brotherhood of Railroad Trainmen, has also issued a circular to his members, urging them to support President Wilson. It is understood that the other brotherhoods will take similar action and that Mr. Wilson will be supported in the brotherhood magazines.

Mr. Hughes started on his second western campaign trip



this week prepared to renew his attack on the passage of the law, and the Republican Congressional Committee has taken advantage of the issue, in a statement by Representative Simeon D. Fess, of Ohio, which it put out last week. The statement is, in part, as follows:

"Now that Congress has capitulated, the strike order been revoked, the threatened cessation of all transportation with the possibilities of untold suffering by the innocent averted, the government temporarily abdicated and permanently humiliated, it is not out of place for the public, who must pay the bill, to calmly inquire of the issue of the immediate future in the light of the recent past.

"To begin with, the 'eight-hour law,' so-called, is misnamed and its title is totally misleading. This law is not a statute fixing the hours of labor, but it is an increased wage grab. On Friday, September 1, Speaker Clark, in a ruling in the House, said:

"Of course, the Chair, like everyone else, has a great deal of respect for recommendations made by the President of the United States, but the Chair is surely not expected to rule under such propositions laid down by the President in that message. It might take six bills or it might take four, or it might take three. In the bill before the House there are two of the recommendations that the President made, and both of them affect the question of wages and do not affect anything else. Critically considered, the Speaker might have cut that message up and referred various parts of it to various committees, but he did not choose to do that. It was a hurried proceeding all around."

"This measure was born in fright, fathered in fear, cradled in partisan politics, and carried through the final action under duress. I do not believe the history of legislation furnishes a duplicate of such action. This, in my judgment, was the high-water mark of national humiliation, if not degradation, as one member put it, as well as the low-water mark of national honor and dignity.

"The abandonment of arbitration when taken by the head of our government in an official command to the Congress sets a precedent against the best possible method of settling labor disputes, from which we will not recover soon. It opens the Pandora box. The action caused the President to cease to be a mediator and made him a partisan dictator."

If the President is going to try to make a real eight-hour day law out of the hastily prepared measure which he has already signed twice, and if he is going to try to make good on his implied promises to obtain increases in freight rates to pay for it, the railroad question seems assured of the spotlight during the next session of Congress if the Democrats remain in power. If they do not they may be expected to lose interest in the subject. A real eight-hour day would probably cost the railroads just as much, if not more, than the eight-hour basic day, although the money would go to more men. Representatives of the shippers may, of course, be expected to get on the job very quickly in view of any such proposed increase in the cost of transportation. Also, the same organizations for whose benefit the law was passed, and why are so enthusiastically Democratic at the present time, will be found in a different attitude if a serious effort is made to put a compulsory arbitration law on the statute books, to make strikes illegal pending a public investigation. Moreover, the 80 per cent of railway employees who are not engaged in the classes of service represented by the brotherhoods may be expected to do all they can to prevent any further discrimination against them at the hands of Congress. H. B. Perham, president of the Order of Railway Telegraphers, was in Washington and sat with the leaders of the train service organizations in the committee rooms just outside the House and Senate chambers while the law was being put through, and it has been rumored that he has counted on securing some crumbs from the feast for his members.

The unorganized employees, too, may be expected to be

heard from. On the morning after President Wilson made his recommendations to Congress, Robert T. Frazier, Jr., on behalf of the unorganized employees, addressed to him a letter, saying: "It would seem that the legislation recommended would operate only to the benefit of 'the employees actually engaged in the work of operating trains in interstate transportation' (the 20 per cent), and that the great majority of railway employees, heretofore unorganized and unheard of, would be without protection or recourse under the law. If this is the design of the proposed law, and it is enacted so, I must respectfully warn you of the event sure to follow, which will place the industrial fabric of the nation in greater jeopardy than it stands at present—the 80 per cent must of necessity organize and present their demands for recognition and protection."

That Mr. Frazier used the words "unheard of" advisedly was indicated by the President's reply to him, in which he explained that the federal government could not deal with any employees except those engaged in "interstate" transportation. A good many "interstate" employees who are not engaged in train operation may call themselves to his attention when the occasion presents itself.

While Congress is being denounced for its part in the passage of the "eight-hour" law, a distinction should be noted between the majority who voted for the bill and those who tried their best to prevent Congress from being placed in the position in which it was placed. Fifty-six representatives and 28 senators voted against the bill, and many of them were courageous and outspoken in the expression of their opposition to the measure, even in the face of forthcoming elections. The issues of the Congressional Record since the adjournment contain many speeches on the subject which were delivered during the debate, as well as others that have been "extended" since that time. Some extracts from the statements made by various senators were published in the *Railway Age Gazette* of September 8. Interesting analyses of the phases of this legislation have also been made by members of the House, some of which are as follows:

William S. Bennet, New York: "I agree with Mr. Gompers that there are worse things than strikes. One of those things is the destruction of the American system of government. I shall vote against this bill. I was born in a railroad town and know railroad men. I was put into public life by union labor men. I have not always agreed with laboring men, but I have never deceived them. I shall not deceive them now, for this proposed legislation is the worst blow that anyone ever dealt to organized labor."

I. L. Lenroot, Wisconsin: "I expect to vote for this bill, but not as a measure of justice to the railroad men, for I do not know whether it is just or not, and there are not a dozen members of the House who have any judgment based on facts as to whether it is just or not. We have the choice of voting blindly today or having a strike. In my judgment one who must share the responsibility for this awful condition is the President of the United States. The President, without investigation of the facts, decided the major portion of the controversy in the interest of the railway employees, and after he did it I want to say that the heads of these brotherhoods are not so greatly to blame for the position they have now taken. I want it distinctly understood that I vote for it to avert this strike and not because I have any opinion as to whether the merits of the bill are correct or not. I have a primary coming on. The easy way for me would be simply to vote for this bill and say nothing. But when I go out of the halls of this Congress for the last time I propose to take with me my self-respect."

E. E. Denison, Illinois: "I think we ought to be honest and plain, and if we are enacting this legislation because we believe in the enactment of an eight-hour law it ought to apply to all employees engaged in interstate commerce."

R. W. Parker, New Jersey: "Congress should not fix

wages without full investigation, and no one should be able to force Congress to act in that regard without the opportunity to have such an investigation made. The government might well order that all these men should hold their places as public servants free from any right of their employers to discharge them and free from any right on their part to go out as a body and upset public business."

J. A. Sterling, Illinois: "We may console ourselves now by saying that this is a temporary measure, but the same influences that prompt us to pass this bill today will prevent Congress from ever changing it. The same powerful organization will be here at the doors of Congress forbidding that the change shall be made, if after the investigation provided for it is found that the increase is unjust."

F. H. Gillett, Massachusetts: "Under threats from men who refuse to arbitrate you are going to enact legislation of whose merits you are ignorant. You are passing this bill not because it is right, but because you are threatened. That is not only humiliating, but is sure to breed future threats. Arbitration is the only fair method we know to determine what is just. Of course, the blame for this rests primarily upon the President."

F. L. Greene, Vermont: "The merits of this dispute are no longer involved until the Congress of the United States asserts its dignity and majesty and self-respect and refuses to be held up by anybody at any time under any threat or under duress. Once begun, where is this surrendering to end? Where will the moral responsibility rest when the people of the United States wake up and find out who did this thing?"

R. C. Johnson, South Dakota: "This is not an eight-hour day dispute. It is a wage dispute, and if you are going to pass legislation affecting one side you ought to be fair and pass legislation affecting the other side. We ought to have arbitration and compulsory arbitration, and I want to say that I was forced to this conclusion by arguments of railroad employees. The people of the United States should never again be put up against a situation of this kind, with a shotgun held at their breast."

J. H. Moore, Pennsylvania: "There is another side to this question than the economic side, and that is the side that is purely political. This matter has certainly been pending for a long time, and it is just possible that it may have been held up until the campaign opened so that the President and his party could make the most of it. If this was the play apparently it has not succeeded. Instead of coming out the hero of the workingmen of the country the President appears to have aided in putting the working men up against a strike to the very great detriment of the people of the United States who will be affected thereby, and from which we are expected to extricate those concerned. The real responsibility for the deplorable condition, for the strike itself if it should occur, will rest largely upon the present incumbent of the White House, although I am inclined to include with him the chairman of the Committee on Interstate and Foreign Commerce, who assured us last July that no strike would take place."

W. J. Browning, New Jersey: "Since I have been in Congress I have voted for all legislation that I believe would benefit labor, but I do not believe this bill is in the real interest of the laboring man. It may, and in all probability it will, avoid a strike temporarily, but, in my opinion, this would be merely postponing the actual settlement of the whole matter."

E. W. Gray, New Jersey: "The Congress is one of the three co-ordinate branches of the federal government possessing distinct and independent rights as outlined by the Constitution. Yet a small unofficial body of our people have served notice on us, along with the President, that unless we enact certain legislation for their particular benefit between now and tomorrow evening they will call their strike."

Edmund Platt, New York: "These four men—or, shall it

I say, the President of the United States, in fear of the votes they may influence in the coming campaign—having refused to agree to arbitration, now demand that the Congress of the United States shall abdicate its position as a deliberative representative body and pass this bill forthwith. I, for one, decline to be either bluffed or coerced into participation into hasty, ill-considered, makeshift legislation, the far-reaching effects of which we cannot foresee."

J. R. Mann, Illinois: "I believe I could have voted for the President's program if proposed in a bill before the House. It at least made the pretense of an effort to prevent similar situations in the future. But the President now backs water and now urges Congress to pass a bill which leaves out most of the essential things which he then proposed. If we are going to yield to the emergencies of the present moment we ought at least to do something toward preventing disaster in the future."

Frank Clark, Florida: "I am in favor of an eight-hour day for all kinds of labor. But this is not an eight-hour day proposition. It is simply a proposition to have Congress exert its power to raise the wages of certain classes of people in this country. I question our constitutional right to do it, and I have no doubt whatever as to the fact that we have no moral right to do it."

C. N. McArthur, Oregon: "I know hundreds of members of the various brotherhoods and I cannot believe that the rank and file of these splendid organizations approve of the methods employed to pass this bill. I am in sympathy with eight-hour legislation, but I do not approve of the measure just passed nor of the manner of its passage. I do not believe it is the function of Congress to legislate as to the wages of employees other than those in the government service. If my political enemies desire to make a campaign issue out of my action I shall take the question direct to the people of my district."

A. P. Gardner, Massachusetts: "This is no more like the true eight-hour principle than chalk is like cheese. I am mighty sorry to vote against this bill. Of course, I know it will hurt on election day, and I am under obligations to the brotherhoods for helping me out of a tight place politically a few years ago. Nevertheless, every now and then a Congressman is face to face with the question as to whether he is going to be a man or a mouse? Just for once I made up my mind to be a man and take the consequences."

F. W. Dallinger, Massachusetts: "That the hurried passage of this hastily drafted bill is a bad thing for all concerned is the real belief of practically every member of this House. That it is ill-advised from every point of view is the overwhelming opinion of the people of the United States. That it will not accomplish its avowed purpose, but is simply another gold brick put forth by the party in power as a means of getting votes at the approaching election must be evident to every intelligent observer."

J. H. Moore, Pennsylvania: "I contend that this whole strike legislation was 'set up' on the House. I repeat that charge now, that it was brought in here as a political dodge, as a campaign measure, and that the gentleman from Georgia (Representative Adamson), whether he did it intentionally or not, was the instrument of a shrewd political dictator who saw what he thought was an opportunity to win 400,000 labor votes. The President has put his foot in it and that shoe pinches. The Democratic party, which thought it had made a ten-strike in 'saving the baby's milk' on Labor Day, is hearing from the newspapers of the country."

W. W. Coleman, Pennsylvania: "The Adamson bill, in my judgment, violates the fifth amendment to the Constitution, and is, so far as it purports to grant an eight-hour workday and an increase of wages to the railroad trainmen, a fraudulent and deceptive piece of legislation. Nor does the bill settle the railroad strike. It has but postponed the evil day. It must be evident to us all that the real battle to come when an attempt is made to enforce the law."



# Railway Signal Association's Annual Meeting

## Continued Progress in Perfecting Standards of Signal Construction; Current History in the Making

THE twenty-first annual meeting of the Railway Signal Association was held at the Grand Hotel, Mackinac Island, Mich., on September 12, 13 and 14, with W. J. Eck (Southern Ry.), president of the association, in the chair and an attendance of over 300 members, friends and guests.

President Eck in his annual address referred to the small beginnings of the association—then The Railway Signaling Clubs—in Chicago, in 1895, and reviewed its rapid growth. From the first its work was important, and it began early to fix standards of signal construction and practice. Now the work of the association is such that its records fill 700 pages a year and its permanent publications, altogether, to this time have aggregated 11,453 pages. Its index to signal literature is indispensable to the student and its manual is a guide to practice on all the railroads. The membership, now numbering 1,268, includes operating and higher officers, signalmen from every state in the union, and individuals from 15 foreign countries. American signalmen have developed power-operated switch and signal apparatus, alternating-current electric apparatus in place of the former simple devices, and the "position light" signal; and have vastly improved all the details of signal apparatus. The future has in store still greater demands on the members of the profession.

C. C. Rosenberg, secretary-treasurer, reported that through representative members 68 railroads have 776 votes in the association. The annual financial statement shows: August 31, 1915, on hand, \$2,152; dues received, \$2,709; sales of publications, \$3,726; miscellaneous receipts, \$3,318; total, \$11,905. The expenses totaled \$9,452; cash on hand August 31, this year, \$2,453.

The Board of Direction reported that it had authorized the establishment of an employment bureau at the secretary's office, which for a small fee will register applicants for employment in the signaling field. The board recommends the increase of the annual dues from \$3 to \$4. It has increased the secretary's annual allowance for clerical assistance by \$600. It has discussed, but reached no decision, on proposals to hold the annual meetings always at one place, and to have only one other meeting during the year. Dr. William Robinson, of Brooklyn, N. Y., inventor of the closed track circuit, and a pioneer in other features of signal development, has been made an honorary member of the association.

The first report was that of the special committee on harmonizing specifications, H. S. Balliet, chairman, which was presented by R. B. Elsworth. It recommended a large number of changes in the style of reports, and of nomenclature to be used in specifications, and proposed more accurate terms for use where loose practice in wording has become common. The bulk of the report is taken up with proposed changes in (a) general provisions for specifications for signal installations; (b) general electrical requirements; (c) detail provisions, and (d) unit specifications.

Under the first head, one section, Section 8, the contractor's guarantee of safety, reliability and economy, in relation to which one member of the committee had dissented from the majority, was the subject of a long discussion in the meeting. A. R. Fugina (L. & N.), moved to cut out the section entirely. It was declared that a guaranty of 25,000 movements of an automatic signal per failure tended to encourage low standards; that to call upon the contractor to guarantee ties or switches, batteries, wires or other things furnished

by the purchaser would be grossly unfair, and that the absence of any clause binding the purchaser to provide suitable material and adequate maintenance left the contract palpably inequitable. For the committee it was pointed out that no road need use Section 8; but to this it was replied that if used even by a few it increased the burden on the contractor and so added to the cost of his work as a whole. The defenders of the report said that long experience had shown contracts of this tenor to be useful and satisfactory to the purchaser; they served, at least, to put each party on notice, in the beginning of negotiations, to call upon the other for all things due from him. To the objection that contracts like this would not stand the scrutiny of the courts, it was replied that they never get into the courts; they are mainly a basis for preliminary negotiations and compromise. Requiring the contractor to approve parts put in by a previous contractor tends to secure uniformity; railroads will order new material from the same maker who furnished the old. Finally, it was declared that any reputable manufacturer will be willing to do what this form requires him to do; there is no penalty clause in the contract, but the contractor who fails to carry out its terms is penalized by not getting his pay.

Suggestions were made that a clause be added defining some of the purchaser's duties, and that the committee be directed to confer with contractors; but, on a rising vote, the whole of Section 8 was rejected; after which it was observed that Section 10, clause b, contained the most objectionable part of Section 8. The whole of the "general provisions," however, except Section 8, was accepted and ordered to letter ballot.

The general electrical requirement, Section 41, were withdrawn, and Sections 40 and 42 were referred back to the committee. Detail specifications, Sections 50, 51, 52, 54, 60 and 61, were ordered to letter ballot, without discussion. The same action was taken, after brief discussion, on the matter on pages 441-448 of the report.

### SIGNALING PRACTICE

The report of Committee No. 1, on signaling practice, C. C. Anthony, chairman, was presented by W. H. Elliott. It dealt with requisites for switch indicators; the problems of signaling single-track roads with reference to the effect of signaling and proper location of passing sidings on the capacity of the line, and the signal schemes which have been presented to the association. The revised statement of the purposes and requisites of switch indicators, published in the May Journal was recommended for submission to letter ballot as a substitute for the matter adopted in 1914. The second installment of the analysis of the location of passing sidings on single track, submitted at the May meeting, contained several errors which are being corrected and a revision will be printed in a later issue of the Journal. The exposition of the three schemes of signaling, published in the March Journal, was presented as information with the recommendation that a reference to it be placed in the manual.

The recommended practice of the association—that the day indications of semaphore signals be given in the upper right-hand quadrant—does not meet the necessities of various electrified lines and it was recommended that the clause read: "b. The day aspects of semaphore signals shall be formed by positions of the arm or arms in one of the upper quadrants."

The revised switch-indicator requisites were approved and

ordered to letter ballot; and the same action was taken on the recommendation of the committee as to approving both left-hand and right-hand quadrant semaphore aspects. This change will necessitate changes in the wording of seven standard specifications.

#### SPECIFICATIONS FOR MANUAL INTERLOCKING

Committee No. 2, C. J. Kelloway, chairman, presented a complete revision of the specifications for mechanical interlocking. This was accepted, with very few changes, to go to letter ballot; but not until after Chairman Kelloway had answered many questions concerning individual paragraphs. The committee finds that counterweights on switch levers, formerly common, but latterly not much used, are still desirable under some conditions. There is some demand for pipe-line cranks 9 in. by 9 in., instead of the standard 11 $\frac{3}{4}$  in. by 11 $\frac{3}{4}$  in. Gage plates are specified as of hard steel; the figures were objected to by some as too hard; but Mr. Elliott said that the New York Central, after tests and long experience had found the committee's formula not too hard. The formula is: carbon, .35 to .45; manganese, .40 to .60; sulphur, not to exceed .04; phosphorus, not to exceed .04. In the discussion of painting, it was brought out that for many castings, to be used indoors, a dipping coat of black had been found to be all the treatment needed at the factory. The coat of red lead, on the coarser parts of the machine, was thought by some to be unnecessary.

The meeting accepted the standard plans for leadaways presented by the committee.

This committee also presented a complete code of specifications for electro-mechanical interlocking. Three sections—40, 41 and 42—are the same as those recommended by the harmonizing committee, and were referred back. On the rest of the code, filling 35 pages, there were numerous questions, but no changes were made except in wording, and the whole code was ordered to letter ballot. The committee's recommended code of requirements at movable bridges was accepted, to be sent to letter ballot.

#### STANDARD DESIGNS

Committee No. 6, F. P. Patenall, chairman, presented eleven drawings for standard designs, asking that they be approved for submission to letter ballot, and also asked confirmation of 16 designs which had been before the association at the last two meetings. Among these 27 plans are:

- 1016—Screw and Solid Jaws. (Revised.)
- 1019—Jaws, Tang End and Adjustable Link.
- 1082—Mechanical Semaphore Bearing. (Revised.)
- 1094—One-inch Pipe Line Insulation. (Revised.)
- 1227—Battery Elevators. (Revised.)
- 1390—Switch Adjustment—Details. (Revised.)
- 1391—Switch Adjustment—Non-insulated. (Revised.)
- 1392—Switch Adjustment—Insulated. (New.)
- 1393—Two-way Separate-pin Horizontal Crank Stand. (New.)
- 1197—Two-lever Wall Machine. (Revised.)
- 1226—Stuffing Box for Wire. (Revised.)
- 1235—Semaphore Spectacle—Design "C." (New.)
- 1357—Ladder for Two-way Single Lamp Signal. (New.)
- 1399—Low Target Stand. (New.)

All of the committee's propositions were adopted, unanimously. In connection with plan No. 1019 the committee was asked to prepare a drawing of screw jaws and appurtenances, assembled, and agreed to do so.

In connection with plan No. 1227 a member voiced a demand for a battery elevator to hold four cells, but the meeting was satisfied with the present design, holding three cells. Many track circuits are now operated with only two cells of caustic soda battery. The committee intends to present a design for a concrete battery box. The switch adjustment bracket (plan No. 1390) was criticized as too light, but Mr. Elliott assured the meeting that the New York Central, with 5 years' experience, had found it amply strong.

This committee expects to present at a future meeting a standard lantern globe and a code of symbols.

#### WIRES AND CABLES

Committee No. 9, Wires and Cables, recommended that the definitions of terms used in wire and cable specifications, published in the March Journal, be submitted to letter ballot, also the specifications for aerial aluminum cable, published in the March Journal, the revisions in the existing specifications for friction tape, and the revision in the existing specification for rubber insulating tape. The report was adopted after a brief discussion.

#### MAINTENANCE AND OPERATION

The committee on this subject, No. 5, reported progress.

#### DIRECT CURRENT RELAYS

Committee No. 7, E. W. Kolb, chairman, which had been directed to prepare specifications for direct current relays, presented a report consisting mainly of an essay by F. L. Dodgson (Gen. Ry. Signal Co.) on the efficiency of track relays of different resistances.

Mr. Dodgson compared the relative efficiency of track relays of different resistances under five heads, viz., shunting qualities, qualities for detection of broken rails, operation under adverse conditions, length of circuits which can be operated, and energy consumed. Four different resistances were considered, 7 ohms, 4 ohms, 3 ohms and 1.9 ohms, these being the resistances of full-wound coils with standard wire with single cotton insulation of Nos. 19, 18, 17 and 16, respectively. He went into considerable detail in a discussion of the susceptibility of relays to foreign current and the current from adjoining sections.

On Mr. Dodgson's paper the committee based the following eight conclusions:

1. Where four-ohm, four-point track relays are used with potash batteries the limiting resistance in series with the battery shall not be less than 0.3 ohm.
2. When two or four contacts are to be operated by a track relay from potash battery, the resistance of the relay shall be 1.9 ohms and the limiting resistance in series with the battery shall not be less than 0.4 ohm.
3. The use where practicable of a fixed resistance to be connected in series with the track relay coils after the front contacts of the relays have been made, this resistance to be 3.5 ohms where 4-ohm relays are used and 1.4 ohms where 1.9-ohm relays are used.
4. That the use of electrically-deposited silver for a contact material be prohibited.
5. That the use of bone for the support of contact fingers be prohibited and that the material used should be inert, so that it will not change its form in service.
6. That on account of the unavoidable resistance in contacts, the number of series contacts in the operating circuit be kept as low as possible.
7. That ventilation of the relay cases surrounding the contacts be provided.
8. That the track relay should preferably have only one contact, that controlling, where necessary, a local relay, said local relay operating as many contacts as are necessary at that location.

On the first and second conclusions, naming a minimum limit for the resistance to be used in series with a track battery, there was considerable discussion. Track circuits are in extensive use where this resistance is only 1.9 ohms, but there was much questioning as to the propriety of using so little. It was the consensus of opinion that to get conclusions satisfactory to the majority there should be numerous tests of low resistance relays, under varying conditions and extending over a considerable time.

Mr. Stevens (A. T. & S. F.) (by letter) and others expressed a willingness to make such tests. The committee's dictum that electrically deposited silver should not be used on graphite for relay contacts was explained as based on the



difficulty of using a sulphuric acid bath as is done in preparing such contacts, without leaving acid in the graphite; which may cause the formation of sulphate of silver, and this introduces resistance. Mr. Patenall (B. & O.) has ordered 50 relays of 1.9 ohms resistance, and expects to report the results of their service.

There was considerable discussion of the committee's recommendation that relay cases (not relay boxes) should be ventilated. Mr. Lunn reported excellent service from glass cases made tight with rubber gaskets. For iron relay boxes cork lining, to delay changes in temperature, has been used with satisfaction. L. R. Mann (Mo. Pac.) believed the main desideratum to be to avoid having any direct path for warm air from underground conduits to the relay in the box.

#### ELECTRICAL TESTING

The special committee on electrical testing, W. N. Manuel, chairman, has investigated the subject of standard marking of relay contact posts. Many roads seem to follow no standard, and the committee will send out a circular to learn the practice and the opinion of members.

As to standard ranges for electrical measuring instruments, the committee finds no satisfactory settled practice. It believes it desirable to have two standard instruments, one to measure above and the other below an agreed dividing line.

#### SIGNALING ON ELECTRIC RAILWAYS

Committee No. 8, C. H. Morrison, chairman, presented a report of 57 pages about three-fourths of which was taken up with descriptive accounts of a number of installations of signaling in which alternating current apparatus is used. Among the installations thus described are the following:

New York State Railways, Rochester & Eastern line;  
 Pennsylvania Railroad, Philadelphia to Paoli;  
 Norfolk & Western;  
 Grand Trunk, Victoria Bridge;  
 Michigan United Railways;  
 Illinois Central (Chicago);  
 Ohio Electric Company;  
 Fort Wayne & Northern Indiana;  
 Gary & Interurban;  
 Union Traction Company of Indiana;  
 Southern Pacific: (a) Lucin cutoff, (b) Rose Creek, Nev., and  
 (c) Truckee, Cal.;  
 Pittsburgh & Lake Erie;  
 Central of New Jersey;  
 Cincinnati, N. O. & T. P.;  
 Kansas City, Clay County & St. Joseph;  
 Long Island;  
 East St. Louis Suburban;  
 El Paso & S. W.;  
 Salt Lake & Utah.

This committee reported complete codes of specifications for alternating current relays and for single phase line transformers. All were unanimously adopted without discussion, to be sent to letter ballot; and the committee was commended for the thoroughness of its work; also for the excellent style of the paragraphs presented, in which there are no blanks to be filled in, except on four blanks containing lists of requisites. The committee at every stage of its work had consulted freely with manufacturers.

#### PETROLEUM ASPHALTUM

Committee No. 3, Power Interlocking, F. B. Wiegand, chairman, presented eight drawings showing typical circuit plans for electro pneumatic interlocking installations, which were approved in substance at the meetings last March and last May; and these were all accepted as information.

The committee reported on petroleum asphaltum, with revised specifications. The report, after brief discussion, was referred back, the melting point named by the committee being declared too low for warm climates.

#### AUTOMATIC BLOCK SIGNALING

Committee No. 4, Direct Current Automatic Block Signaling, W. M. Vandersluis, chairman, presented revised

specifications for capping and trunking, which, with slight modifications, were accepted and ordered to letter ballot. The same course was taken with specifications for direct current automatic signals, low voltage, and for fibre and metal conduit. Matter presented on sizes of line wire was accepted as information.

#### STORAGE BATTERY

Committee No. 10, R. B. Elsworth, chairman, presented a revised code of specifications for lead type, portable storage battery for signaling; for composite type stationary storage battery; and five standard drawings for use in connection with storage batteries. All of the matter was accepted, after brief discussion, and the recommendations of the committee adopted.

#### ANNUAL DUES

The meeting adopted, after a brief discussion, the proposition of C. C. Anthony and others to amend the constitution so as to require active and associate members to pay annual dues of \$4. For junior members the rate will remain \$3.

#### ELECTION OF OFFICERS

The place chosen for next year's meeting is Atlantic City, N. J.

The tellers who counted the votes for officers of the association for the ensuing year reported 214 votes, all for the nominees presented by the committee. The men chosen are:

President, C. A. Dunham (Great Northern); first vice-president, W. H. Elliott (N. Y. C.) holds over from last year; second vice-president, R. E. Trout (Frisco); directors, F. E. Whitcomb (B. & A.); I. S. Raymer (P. & L. E.); F. W. Pfleging (U. P.); L. R. Mann (Mo. Pac.).

The Signal Appliance Association, at its meeting Thursday, chose the following officers: Chairman, Fred C. Cameron, Corning Glass Works; vice-chairman, Geo. C. Isbester, The Rail Joint Company; secretary-treasurer, F. W. Edmonds, Dressel Lamp Works, New York City; executive committee, W. J. Gillingham, Hall Signal Company; J. D. Underhill, The Okonite Company; Carl Henze, Federal Signal Company; C. E. Brown, Central Electric Company, and J. S. Hobson, U. S. & S.

#### BANQUET

The annual dinner of the association on Wednesday evening was, as usual, a great success. The speakers were Marcus A. Dow, general safety agent of the New York Central Lines, who spoke on "Safety First," alluding to "R. S. A." as meaning "Real Safety Association," and Samuel O. Dunn, editor of the *Railway Age Gazette*, whose address, dealing with recent events at Washington, was entitled "The New Tyranny."

**NEW RUSSIAN LINE.**—The Russian ice-free port in the Northern Sea is likely to be in railway communication with Petrograd before December, as there is only one section of 215 miles (out of a total of 910 miles) which is not quite completed.

**NICARAGUAN RAILWAY AGREEMENT.**—Formal approval of the agreement between the Nicaraguan Government and the Pacific Railroad of Nicaragua has been given by both houses of the Nicaraguan Congress and is promulgated by the President in La Gaceta of June 28. Under the terms of this agreement the railroad company, which is financed in New York City, will construct and operate a railway from the Atlantic coast to the present Pacific railway system of Nicaragua or to the steamship lines owned by the same company. The total length of the new railway will be about 200 miles, and it will supply much needed transportation facilities from the Atlantic coast.

## DISCIPLINE ON THE NEW YORK CENTRAL\*

By G. H. Wilson,

Superintendent Electric Division, New York Central, New York City.

On the New York Central a system of suspended sentences is in effect. The first principle of good discipline is a thorough and intelligent investigation of all cases requiring discipline. These investigations should be held by the heads of the departments, to whom the men report, viz., chief train despatcher, trainmasters, master mechanics, etc., except, of course, important cases of accidents on the main lines, which should be held by the superintendent personally. If investigations are thorough, and if impartial discipline is applied; if the reason for the action taken is thoroughly explained to the employee, and he is made to understand the reason for it, and to acknowledge that what he did was wrong, the discipline will not only hold, but almost any system of discipline will be successful.

I have known a number of superintendents who endeavored to investigate every minor case personally, with the result that they could not accomplish that which they had set out to do. At the same time the men would lose respect for the authority of the division officers under the superintendent. In other words, make your subordinates as big men as possible, and you have started your discipline on the right road.

The Brown system of discipline or modifications thereof, which is purely a demerit and merit proposition, is effective and reasonable in probably eight or nine-tenths of the cases, but there are a few men in the service of all roads who do not heed either the personal warnings of the officer, or the placing of demerits against their records. There are also serious offenses committed by employees occasionally, and particularly by the small class referred to, that would seem to warrant an actual suspension, in order to get better results from them in the way of future conduct. While this may be a harsh opinion of some of the men, it seems true that suspended sentences hanging over them constitute the greatest incentive to future good service. They realize that money loss is coming to them unless they mend their ways.

The amount of discipline should be decided at a staff meeting held once each week by the superintendent, he having present the assistant superintendent, chief train despatcher, trainmasters, master mechanic, foreman of car department and all others to whom the men report. The head of the department should make his recommendation in writing, giving full details of each case, with the service record of the man; and after being reviewed by the superintendent and the staff meeting, if he or any other member of the staff believes that the recommendation is wrong, it should be modified or increased in accordance with the judgment of all the members of the staff; the superintendent, however, reserving the right to apply the discipline, if he is satisfied the recommendations of the others are wrong.

After these meetings a written record is made and given to the head of the department concerned, who personally delivers it to the employee disciplined, having the proper understanding with him as to the reasons therefor; and a copy is placed in his envelope record.

Only four kinds of discipline should be recognized, viz.: Reprimands, suspended sentences, actual suspensions, dismissals.

All discipline should be applied for three reasons:

- (1) To get better service.
- (2) To avoid taking men out of service, resulting in loss of money to them, and, if they are competent men, loss of efficiency to the company.
- (3) Keeping the men out of debt and making them of greater benefit to their families.

When a man is first suspended a certain number of days, the sentence should be suspended pending good behavior, and on the stipulation that he keep out of any further trouble.

After the expiration of one year, the man should not be required to serve any actual suspension; but it will still remain a part of his record.

If within one year, he offends to the extent that a suspension is necessary, he will be called upon to serve the suspended sentence; and a new suspension will be placed against him for another period of one year. Slight infractions which call for reprimands only, should not cause a man to serve a suspended sentence.

The system with which I have had experience does not involve the elimination of anything from the man's record, the items being cumulative. It is inadvisable to eliminate entirely from a man's record gross carelessness, personal bad habits, etc., and for that reason it is pretty hard to draw a line whereby any system of discipline should take anything from a man's record.

Meritorious service is that which is performed by an employee when going out of his regular line of duty, and not the prompt and proper application of good judgment in his regular line of duty, which is expected of everyone at all times.

An employee who is not on duty and sees a dangerous condition and takes action which prevents an accident; or an employee while on duty, who takes action of this kind to prevent an employee in another grade of the service from causing an accident, is termed meritorious, and the facts entered upon his record. These will be given proper consideration if it becomes necessary to apply discipline to that individual at some future date.

In a period of four and a half years we find a greatly improved service because of the above method of handling investigations and discipline. For the past four years no discipline has been annulled, and for the past three years only one or two cases have been modified. For the six months ending June 30 last, the total number of dismissals was five; total number of suspensions served on account of previous offenses, 148; total suspensions imposed but not served, 751; reprimands, 181. This record is that of a force of 2,717, including 350 conductors, 75 assistant conductors, 900 brakemen, 350 enginemen, and 400 firemen; 300 operators, signal men and station men; 22 yardmasters; 280 trainmen in yard service, and 40 switch tenders. Of the trainmen in road service, about 40 per cent are employees of the New York, New Haven & Hartford. These men run over 12 miles of the New York Central, as compared with runs of 25 to 35 miles, on this division, of the men who are employees of the New York Central.

(It will be noted that in the half year the number of suspensions served on account of previous offenses is about one-fifth of the number of new suspensions; approximately one-sixth of the men who are disciplined, other than by reprimand, are believed to require something more severe than an entry on a book, to impress upon them the seriousness of their misconduct or neglect.)

Mr. Wilson's territory includes the Grand Central passenger terminal, and 55 miles of main line; one small freight classification yard, and 47 freight and passenger stations.

A supplement to the paper gives an example of a discipline record, that of John Doe and Frank Jones, conductor and brakeman, for backing through a switch which was wrong, distorting the switch points so that a short time afterwards an engine was derailed. Damage was done to the amount of \$125. The conductor was adjudged worthy of suspension for three days, and the brakeman for five days, for passing through a switch without knowing whether it was in the right position. Both sentences were suspended; but Conductor Doe was required to lie off three days because of a record standing against him for a slight collision which had occurred four months previous.)

\*A paper read before the American Association of Railroad Superintendents at Memphis, Tenn., August 16.



# Master Car and Locomotive Painters' Convention

Report of the 47th Annual Meeting Held Last Week;  
Subjects Include Purchasing Paints on Specifications

THE forty-seventh annual convention of the Master Car and Locomotive Painters' Association of the United States and Canada was held at the Breakers Hotel, Atlantic City, N. J., September 12-15, H. Hengefeld, master painter of the Atlantic Coast Line, presiding. The association was welcomed to Atlantic City by a representative of the mayor. In his address President Hengefeld dwelt on the relations of the members with their superior officers, and laid stress on the need for economy under the present conditions affecting wages and the price of materials. The secretary-treasurer reported a membership of 305, which is a gain of 13 over last year.

## REPORT OF TEST COMMITTEE

The Committee on Tests, of which J. W. Gibbons (Santa Fe) is chairman, presented a report from which the following is taken: The committee last year proved by a number of tests that heat treated linseed oil made the best paint vehicle for the protection of iron and steel. To further substantiate the proof submitted, we have secured paints made with the same pigments, but the vehicle in one set was raw linseed oil and in the other heat treated linseed oil. These paints were applied on sandblasted steel plates, and when dry the plates were fastened on the roof of a passenger car.

The plates on which the paint mixed with raw linseed oil was applied are badly corroded. The others are in fair condition. A number of the plates were painted with different compositions of red lead and inert materials mixed with the different oils, but we did not have sufficient exposure to secure definite results; film tests made of these materials indicate that comparatively the same results may be anticipated. These films were allowed to dry for ten months, then submerged in water for 60 days, taken out and allowed to dry for one week, then submerged for 30 days.

*Discussion.*—It was brought out in the discussion that red lead, with from 10 to 15 per cent of litharge, will give the best service in painting steel cars. The Norfolk & Western has tried pure red lead and has had to purchase litharge to mix with it in order to get the proper drying qualities.

## TREATMENT OF STEEL PASSENGER EQUIPMENT ROOFS AND DECKS

H. Hefflefinger (Penna.)—There seems to be only one way to guarantee a thorough cleansing of these parts and that is by sandblasting, either before or after assembling. The roof should not receive less than three coats of a well-trying-out elastic mixture. The decks, deck screens and deck sash should be primed outside and inside with the same kind of material used as a primer on the body. The outside of these parts should then be followed up with two coats of body color and two coats of the same kind of finishing varnish as is applied to the body outside. The painted finish of the inside of the decks and deck sash after being well primed depends on the finish the interior of the body is to have up to the varnish coats.

To get the maximum wear out of painted surfaces on the interior of steel passenger equipment cars they must be covered with as slow a rubbing varnish as possible, sacrificing to some extent the finer finish a quicker rubbing varnish would make. Unless this is done a checked surface will develop in a short time. If the roof is badly rusted it should be sandblasted and painted the same as if new. If not badly rusted, it would be gone over with wire brushes and

scrapers and given at least two coats of a well-brushed-out elastic paint.

J. D. Wright (B. & O.).—Corrosion of steel roofs, decks, deck screens, etc., is the principal cause of their deterioration and the metal in these parts should be protected adequately from the outset to prevent the corrosion from getting a start.

During the process of construction all overlapping joints should be filled in with a thick protective mixture and made water tight. The underside of the roof sheets, the back of all deck sheets, and all hidden parts should be thoroughly cleaned and receive two coats of a good metal preservative paint before being covered, after which the exposed surfaces are ready for the initial treatment.

The cleaning of the metal is the first and one of the most important steps in the initial treatment. All oil, grease, dirt, scale and rust should be entirely removed before any coatings are applied for the protection of the metal. Benzine will remove the oil and grease, but the sandblast is by far the best means of preparing the steel for the paint coatings. It not only removes the dirt, scale and rust, but also roughens up the surface of the metal so that the priming coat has a better opportunity to "hold on" to the steel.

For the first, or priming coat, we consider it good practice to apply a thin paint carrying a small quantity of very finely ground pigment so that it will penetrate as far as possible into the pores of the metal. This coat should be applied immediately after the metal has been cleaned with the sand blast, before there is time for corrosion to form on the freshly cleaned metal, and it should be well brushed during its application. The succeeding coats should have good body, a generous supply of pigment being used in the mixtures. We have found good oxide of iron paints suitable for these intermediate coats. The finishing coat must conform to the standards of the different railroads.

To overcome the abrasion caused by cinders, also the troubles due to hot cinders falling on the steel roofs and burning out the life of the paint film, we find it good practice to sprinkle sand in the last coat of paint at the initial treatment.

It is now almost universal practice to apply to the exterior body of new steel passenger equipment cars, from three to five coats of surfacer, two of color, and three of exterior finishing varnish, or a total of eight to ten coats, and our observations lead us to believe the bodies are pretty well protected. The roofs, decks, deck screens, etc., however, get only three or four coats as a rule, though the exposure is much more severe on these parts. From this it would seem that we may be applying more coats than is actually necessary for the protection of the steel on the bodies, and less than necessary on the roofs, decks, etc.

The maintenance of the roofs, decks, deck screens, etc., is fully as important as the initial treatment. I hardly think it feasible to lay down hard and fast rules stating the exact time these parts should be repainted, for on the mountain divisions where there are numerous grades and tunnels, a few months' service may be more severe than a year's service in a prairie country where there are few grades, and no tunnels, or where oil is used as fuel in the locomotives. Again, some cars make considerable more mileage than others. Watchful care is more essential than anything else to the preservation of these parts of the car. A paint with only moderate wearing properties, applied at the right time to prevent corrosion, will give better results than the best mate-

rials applied at irregular intervals, or after the parts have become corroded.

O. P. Wilkins (N. & W.)—There are three elements that must enter into a proper protection for steel passenger car roofs, decks, screens, sash, etc.; namely, the preparation of the steel, the quality of paint, and the application of the material. No matter how well the surface is prepared, if the right kind of material is not used, the effort is practically lost; and no matter how well we prepare the surface, nor with what care the coating is compounded, if it is improperly applied, we may look for an early failure.

We have more or less trouble in protecting the upper parts of our steel passenger cars, and the main reason is that we have adopted the same method as that employed in protecting locomotive cab roofs; this method, not being a cure-all, did not produce the same results.

First, thoroughly sandblast the surface and prime immediately with a first class primer. It is of the utmost importance that the priming be done before the accumulation of any moisture, otherwise the sandblasting would be of little value. Red lead and raw linseed oil have been adopted exclusively as a primer, as a result of tests, for all structural steel. Having primed the roof, when thoroughly dry, apply three coats of high grade roof paint, allowing ample time between each coat for proper drying. For this operation we recommend a high oil carrying capacity pigment such as lamp black, graphite, and finely divided iron oxide. The hood ends are improved and offer greater resistance to the cinders if the last coat of roof color is given a liberal sprinkling of sand.

For maintaining the steel roof, we suggest that it is of paramount importance to have a thoroughly competent man to inspect it at terminals; when he finds the paint film breaking, he should not lose any time in applying a coat of standard roof paint. Employees reicing and watering cars should be required to wear rubber heels on all shoes to prevent the nails from scratching the painted surface.

*Discussion.*—The New York Central has found it best to sand only the curved portion of the roof. There is no need of sanding the level surface as cinders cut out only on the curved surface; sanding on the level surface helps to carry the moisture down to the surface of the steel. The experience of the Lackawanna has been similar. The Pullman Company is sanding its roofs all over, but it is believed that it is poor practice. Attention was called to the fact that weather conditions under which steel is painted have an effect on the service of the paint. Priming should not be done when the humidity is great. One member believed that metal should be painted only when it is warm enough to drive off all moisture. One road uses special pneumatic tools to clean the steel and has abandoned the sandblast. J. W. Gibbons of the Santa Fe stated that the quality of the steel is an important point. It must be free from impurities that are aggravated by moisture getting under the paint. It was decided by vote that it was the consensus of opinion of the convention that it is detrimental to apply sand on the flat surfaces of a steel roof.

#### TREATMENT OF INTERIOR AND EXTERIOR OF TENDERS

A committee report on this subject was presented by W. A. Buchanan (D. L. & W.), chairman. It was stated that many roads do not paint the interior of tenders. For the exterior some method should be used thoroughly to clean the steel, the sandblast being considered preferable. A good coat of elastic primer should then be used, followed by the usual finishing coats, the process varying on different roads.

*Discussion.*—One member considered that the process referred to in the report took too much time for present day locomotive service. It was also stated that no paint will withstand the action of the water in tanks and particularly the action of treated water and that the painting of the inside of

tanks was considered a waste of time and material. The Santa Fe uses treated water and it has been found that this forms a protective coating on the inside of the tanks, which is a better protective agent than any paint.

#### ADDRESS BY F. W. BRAZIER

F. W. Brazier, superintendent of rolling stock, New York Central, addressed the association and said a number of encouraging things to the younger men. He referred to the fact that the car department is recognized as it should be on but few roads and that its men should be just as eligible to promotion as men who are engaged in locomotive work.

#### REMOVAL OF TRIMMINGS FROM PASSENGER CARS

J. W. Fryer (N. C. & St. L.)—I am convinced that considerable trouble is caused by the trimmings not being removed at the proper time. If locks, hinges, sash and blind lifts, etc., are not removed, and properly cleaned, they will later mar the appearance of the car, and their removal will save time and expense trying to keep varnish and paint off them.

*Discussion.*—The New York Central removes all interior trimmings when painting the insides of cars. One member stated that he always insists on the removal of all sash. In washing the interior, care must be taken to prevent water getting through the holes used for screws, etc., after the parts are removed, as it will damage the inside surface of the steel, as well as the insulation. Most members believed that all sash should be removed in making repairs of whatever class and it was the consensus of opinion that all interior trimmings should be removed.

#### EFFECTS OF WATER AND OIL CLEANING METHODS ON PAINT

A paper was presented by W. A. Buchanan (D. L. & W.) on the special method in use on that road, in which it was stated that the water which is used in this process should not be considered hot, as it is about 90 deg., and is not over 70 deg. when it strikes the surface. In two years' use at East Buffalo, no trouble has been experienced with painted surfaces due to heat, although there has been some due to wear. The process has greatly reduced the cost of cleaning locomotives and has caused no trouble from hot boxes or other causes of like nature. The interior of the cab is cleaned about every fifteen days, and as the engines are always clean, it assists materially in keeping the men clean and facilitates inspection and repairs.

*Discussion.*—J. W. Gibbons of the Santa Fe believed that there was a film of oil left on the varnished surface and favored the use of dry waste on such surfaces or something that will not leave a coating that will catch dust and dirt. He believed the spraying method was entirely satisfactory for the running gear, but not for the jacket and other varnished surfaces. B. E. Miller of the Lackawanna stated that a film of oil does form on the surface and while it is annoying and sometimes obscures the lettering, it is largely due to improper handling and the use of too much oil. It has lately been found practicable on the Lackawanna to occasionally wipe passenger locomotives with waste to remove this film. Several members considered the process injurious to varnish and paint, while others said that all the trouble lies in the improper installation and operation, they having had trouble at first, but the difficulties having been eliminated with the correction in the use of the machine. It was decided by a vote of the convention that the process was considered satisfactory for the running gear of the locomotive, but detrimental to the painted and varnished surfaces.

#### RAILWAY LEGISLATION AND ITS EFFECT ON BUSINESS

J. W. Gibbons, Atchison, Topeka & Santa Fe, presented a paper from which the following is taken: Many of the men who have advocated stringent regulation of the railroads are



honest and have given expression to their conviction after careful consideration of the question, but a certain class of politicians who are ever ready to influence the minds of the people with the hope that they may ride into power on the wave of discontent they help to create, took advantage of the state of political unrest that prevails in our country, magnified the real grievances and multiplied the imaginary ones until some of the people thought the panacea of all their social and political ills was the confiscation or annihilation of the railroad companies. The multiplicity of the rate making and regulating commissions, the ignorance of some of them of the fundamental principles of railroad business, the clamorous cry of the demagogue, the selfish demands of near-sighted shippers, all had a tendency to create distrust in the minds of the investor as to the security of funds invested in railway stocks and bonds and made it impossible

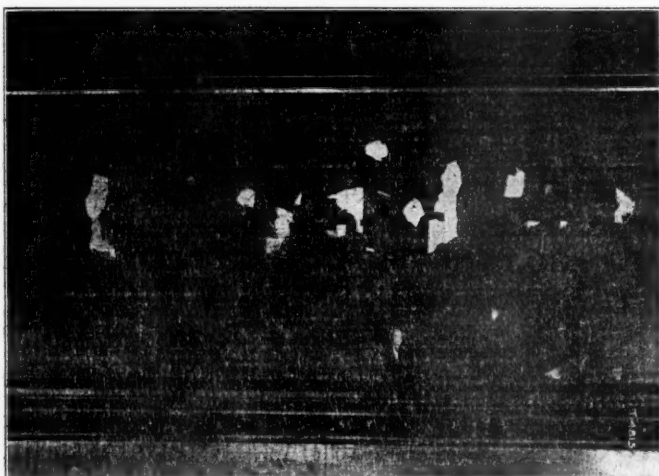


Fig. 1—Interior of Car No. 4579

to obtain the money necessary to make extensions or purchase equipment to take care of the natural growth of the business in the territory which they served.

The first to feel the disturbed condition of railroad business was the railway employee, then the retail merchant, whose customers could not meet their bills, next the wholesale house and finally the manufacturer and producer.

In spite of the increased mileage and the natural growth of the business of the country, 104,374 men were deprived of the positions that they had on the railroads in 1907. In spite of the great saving this appears to be on its face for the railroads, at the close of the year 1915 there were 20,143 miles of railroads in the hands of receivers as against 317 at the close of year 1907, and yet, during this period of depression upon railroads, our country has been blessed with good crops, the foreign wars have created an unusual demand for the products of our farms, mines and factories, prices have soared and the expense of operation has increased.

The railroads have used up all their available material, their equipment and track has been worked to the limit and must be renewed if the business of the country is to be handled properly. The indirect loss to the country is immeasurable. Owing to the lack of funds to purchase equipment and build terminal facilities, many of our lines have become blockaded in the last six months, due to the rush of war munitions to the east.

How many towns and counties in our country are lying dormant or going back because of the lack of confidence of men with capital in the future ability of the railroads to pay a reasonable return on the investment? For fifty years the policy of our government has been to levy a tariff on imports sufficient to protect the American farmer and working man from competition of the cheap labor and products of foreign

countries. The degree of protection necessary has been the only difference of opinion among our statesmen. The railway companies and their more than one and one-half million employees are not asking for a protective tariff, but are earnestly pleading for a tariff sufficient to pay a living wage to the employees and a fair interest on the money invested.

Let us hope that out of the chaos that has brought the railroads of our country to the verge of financial disaster, there will be an evolution that will place them on a firmer business basis and that the people will have a better and clearer appreciation of their work.

#### SHOPPING PASSENGER CARS FOR CLASSIFIED REPAIRS

H. A. Polhemus (Erie Railroad)—The proper practice to employ at the terminals to prolong the life of the finish is to use a good oil cleaner once in six months, rubbing the surface with a bead scrub brush or curled hair, removing all the dirt and wiping thoroughly with dry waste. This will keep the body in a more suitable condition for wiping with dry waste between the oil cleaning periods.

The shopping of equipment should be done in a systematic way by an inspector (a painter would be preferred) using his best judgment to get the bad cars through the shop first. At present, the transportation department sends the cars to the shop for general repairs, regardless of their condition. Very often cars get into the shop which should remain in



Fig. 2—Interior of Car No. 1717

service from six to twelve months longer and they are stripped and scrubbed before the mistake is discovered.

J. A. Allen (N. Y., N. H. & H.)—The shopping of passenger cars should be done under the supervision of the master painter. He knows after a certain time the condition of cars without even seeing them, owing to his familiarity with certain surfaces, colors, varnish, etc. He also knows that if he could call in cars at a certain period and were allowed to proceed on this plan, he could keep up the equipment with fewer men, less track capacity and considerably less expense.

W. L. Shaffer (Penna.)—The shopping of passenger car equipment should be left to the master painter in charge, inasmuch as the classifying of the equipment is governed by

the condition of the paint. He is the one who must be in constant touch with the situation, making periodical inspections, and is consequently familiar with the repairs previously given to the car. Therefore, he can most efficiently judge the proper classification needed in each instance.

*Discussion.*—It was decided by a vote of the convention that it was the consensus of opinion of the members that the master painter should have charge of deciding what class of repairs is necessary for passenger cars.

#### PURCHASE OF PAINT ON RAILROAD SPECIFICATIONS

W. O. Quest (P. & L. E.)—When a railroad asks a paint making concern to put its lowest selling price on its own specified formulation for paint, it does so at its own risk, because in so ordering its paint supplies on an open market the buyer assumes all of the responsibility for quality value. On the other hand, when the railroad buys the guaranteed specialty paint of the reputable railroad paint maker at the usual, fair, established market value, there is no buyer's risk.

The more I studied this subject, the more I became convinced that it is positive economy for a railroad to buy paint from the specialist maker. As a matter of business, the transaction is safer, because such reliable people have a business reputation to sustain, which, as a rule, they will back up.

There have been thousands of demonstrations that have taught that the best paint that can be bought is the cheapest in the long run. As a consequence, it does not matter whether the best paint is a reputable manufacturer's or a railroad specification paint, just so long as the purchasing company gets its money's worth. If the railroad specification paint is

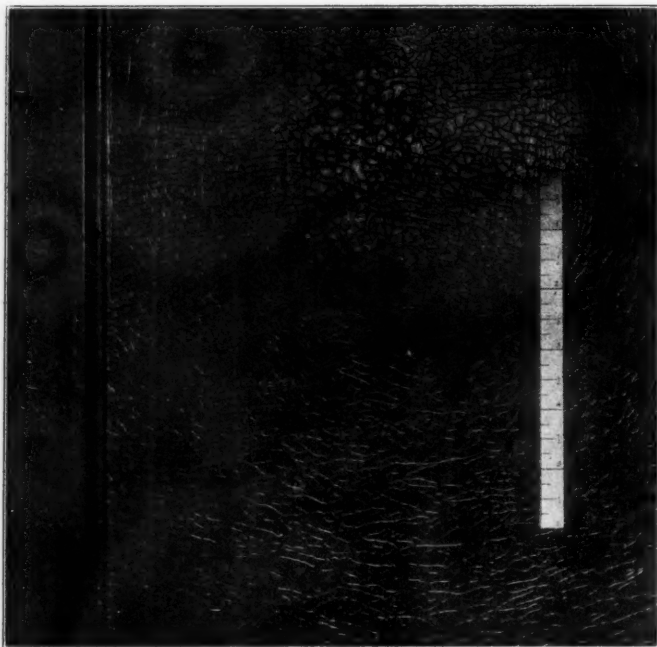


Fig. 3—Interior of Car No. 1621

the best, let us have it, but not in its hazardous cheapest-in-price form.

Dr. M. E. McDonald (Penna.)—In the question before us for discussion I shall consider the word "paint" in its broader sense so as to include the varnish used in coach and locomotive painting operations. There are evidently two sides to this question, but there should be only one. If chemists knew the best paint for each particular application, and if they could write a specification for each in such a manner that they could be complied with, and if all paint products not complying with the specifications could be rejected, there would be but one side to the question. A specification informs the purchasing agent and the manufacturers

just what is wanted and affords a fair basis for competition, and there is no reason why any consumer should buy something which he does not want.

On the occasion of a recent visit to the factory of a large paint company, which has apparently organized an advertising propaganda against paint specifications, a request came in for a quotation on a large order for paint oil. The railroad sales manager said, "Now what do you suppose is wanted? We can make paint oil covering a wide range of merit, composition and price. We do not know what this prospective customer wants to pay or how to deal with such inquiries." He could have said exactly the same thing with

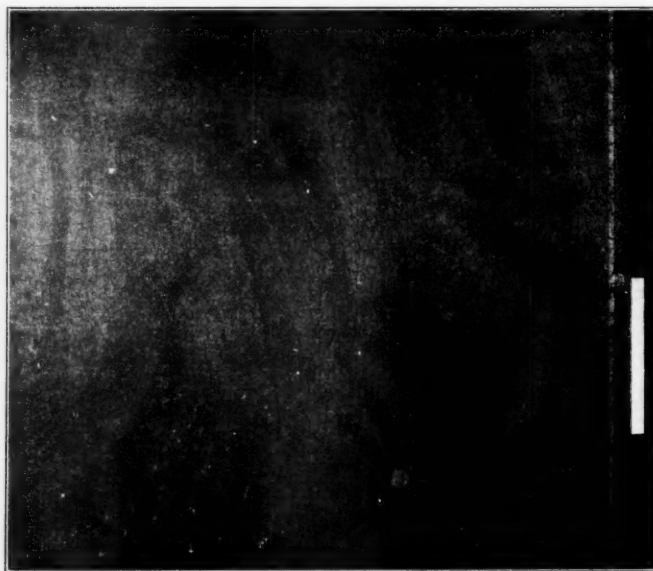


Fig. 4—Exterior of Car No. 1775

reference to a paint inquiry which was not accompanied by a specification. It would almost seem that the main objects in trying to break down paint specifications is to avoid competition.

It is argued by some that paint specifications retard progress by fixing standards. Such argument has little weight, for any paint consumer would change his specification if he were convinced that it could be improved upon.

It would not be fair to assert that all of the criticism against paint specifications is unjust. In drawing up a specification, it is important to first ascertain by experience what will meet the practical requirements of service. The composition called for should not be unnecessarily restricted; it must be a product readily available. It is also important that the purchaser can make the necessary tests, to compel compliance with the specification. To state what is desired without insisting on compliance with the requirements is unfair to competing manufacturers, and does not protect the consumer. There is a tendency in certain quarters to write specifications which cannot be enforced. The fact that some specifications are written without due consideration does not condemn a sound principle. It would be just as fair to condemn the practice of medicine because some quack doctor without any knowledge of medicine is allowed to practice.

It is not practicable with our present knowledge to control the purchase of all paint produced on chemical test. In such cases, physical tests can be devised, which we believe will be fair to competing manufacturers, and at the same time protect the consumer. Varnish is a good example of a product which, in our opinion, cannot now be controlled chemically, yet we believe it is possible to devise a specification under which it can be purchased on a competitive basis.

To indicate the necessity for such tests, the accompanying illustrations are shown. Fig. 1 shows the interior of a 54-ft.



compartment car No. 4579 completed May 29, 1912, which received class repairs including color on the exterior and varnish throughout, which were completed on May 21, 1913. It was photographed February 7, 1915. The car had consequently been in service 1 year, 8 months and 17 days, following class repairs.

Fig. 2 shows the interior condition of a 70-ft. passenger car No. 1717, completed by another car builder September 1,

in service less than two years, two were less than three years old, and the fourth car, which was the oldest, had been built only three years and three months.

Fig. 5 shows what is possible in the way of durability. This car was completed in January, 1913, and photographed 3 years, 4 months and 14 days later, before it had received any class repairs. Fig. 6 shows the interior condition of the same car. With such examples confronting our officers, it

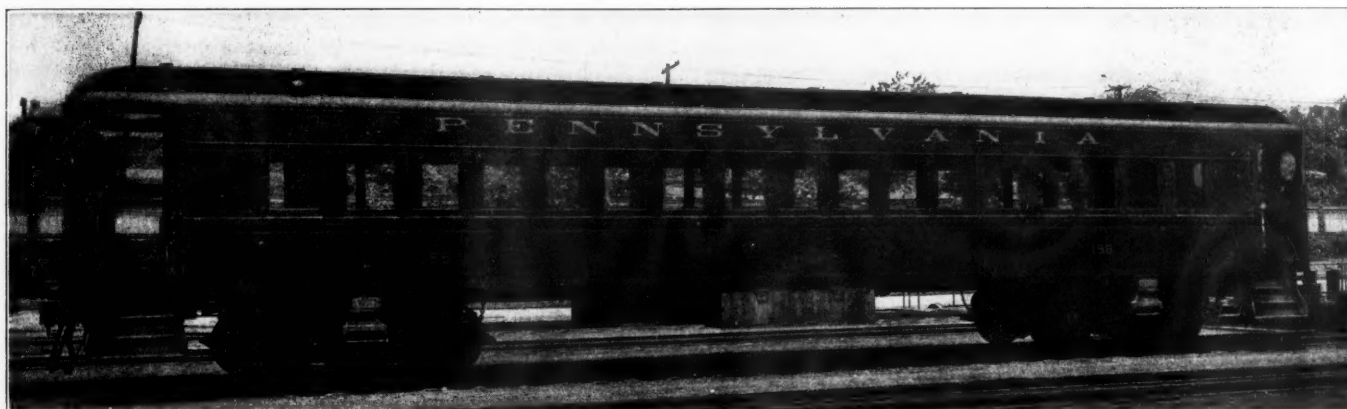


Fig. 5—An Example of the Possibilities of Paint Durability

1908, which received class repairs, including color and varnish on exterior and interior, which were completed on February 11, 1910. It was photographed about December 1, 1911, after 1 year, 9 months and approximately 20 days' service, following class repairs.

Fig. 3 shows the interior condition of a 70-ft. passenger car No. 1621, which was new January 20, 1910, and photographed on or about December 1, 1911, after 1 year, 10

was considered necessary to more rigidly control the purchase of varnish. It is but fair to state that this car No. 156 was painted by the baking process. The varnish was one of four selected from panel tests of a large number of baking

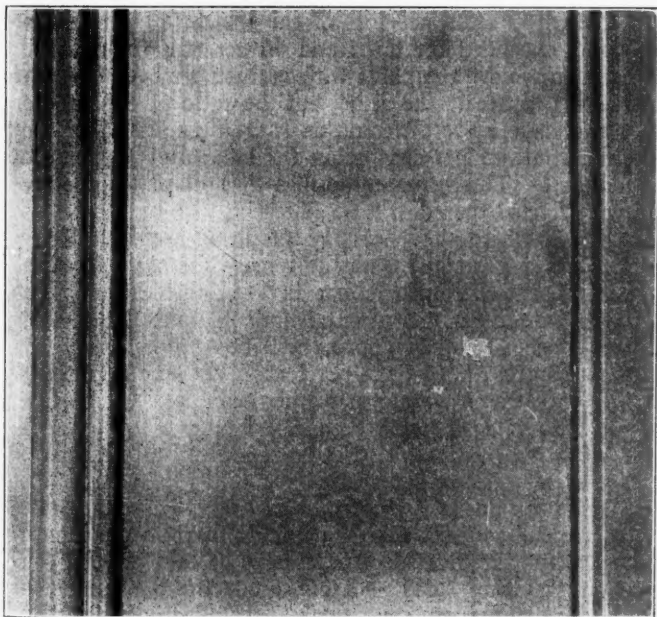


Fig. 6—Interior of Car Shown in Fig. 5

months and approximately 20 days' service and before it had received any class repairs.

Fig. 4 shows the exterior condition of a 70-ft. passenger car No. 1775, which was new in January, 1909, received class repairs, including exterior color and varnish, which were completed on April 13, 1910. It was photographed on or about December 1, 1911, after 1 year and approximately 7½ months' service, following class repairs.

The appearance of the cars just described is far from satisfactory. Ignoring class repairs, one of these cars had been

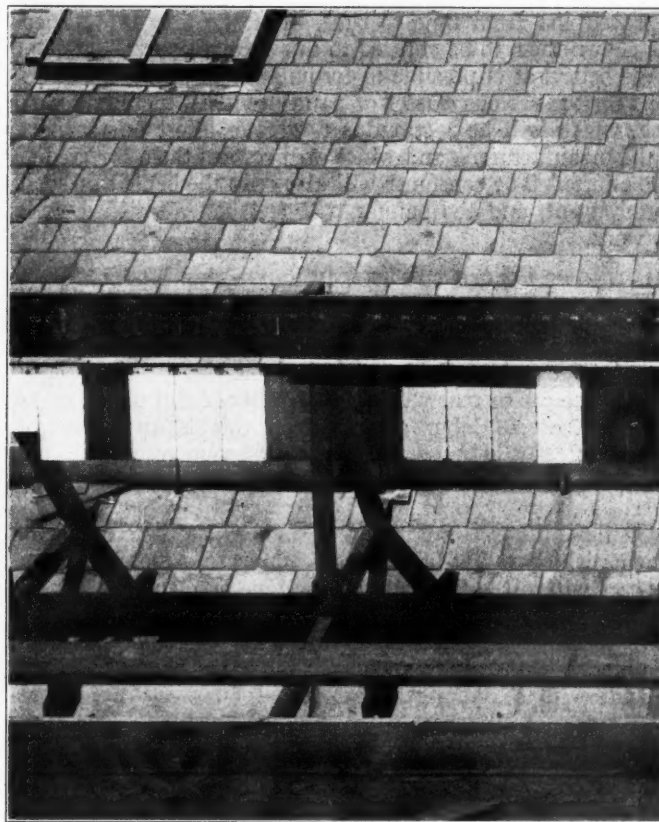


Fig. 7—Method of Exposing Test Samples on the Pennsylvania

varnishes. The tests showed that many of the samples submitted by manufacturers were inapplicable. The result of these trials on baking varnish were so convincing that it was decided to have the same tests applied to other kinds of varnish. A method was accordingly worked out and put in

effect January 1, 1915, and while all varnishes are now virtually bought on specification, we are confident that the manufacturer is not limited in the exercise of his ingenuity.

The fact that a test was started on some 50 brands of varnish this month shows that the method does not prevent competition.

The method is largely practical, the tests being made on standard sandblasted steel panels made from sheet steel which was purchased for the construction of passenger cars. Each panel is 14 in. by 30 in. in size. One side of a large number of such panels is prepared by applying a suitable surfacing system and two coats of flat Tuscan red, excepting a space 3 in. by 30 in. at one edge, which is left bare. Each panel is then laid off into six sections, and each section is numbered consecutively, the figures being white, and a white stripe is applied lengthwise across the panel over the Tuscan red. The object of the white stripe is to make possible a better judgment of the color of the varnishes, under test, dark varnish being objectionable.

The varnish samples to be tested are divided into groups, made up of the various classes which are used. On the third day following the application of the last coat of varnish, all test panels are placed in a vertical position on a rack having a southeastern exposure, and observations for checking are made at intervals of two or three days. Fig. 7 shows the test rack as it existed on September 1.

In the purchase of varnish, it is our practice to place requisitions for any of the brands which are on an approved list. Samples from all shipments received are tested, and if the quality is found to be below standard such brands are dropped from the approved list and purchase of them discontinued. New brands of varnish are also added to the approved list from time to time, after the test as outlined has shown them to be entitled to this recognition.

We believe it is possible to formulate and apply specifications for the various classes of paint products, including varnish, which will be a stimulus to greater effort on the part of the manufacturers, and which will reward them for creditable efforts. The consumer will also reap the benefit of such improvement, and the painter will feel better satisfied with his work.

#### PAINTING OR OILING THE INTERIOR OF STEEL HOPPER CARS

J. Gratton (B. R. & P.)—Corrosion starts principally from the interior of the car, eating its way through the floor, hopper and side sheets, making necessary the shopping of the car to renew the sheets. On account of the present high cost of labor and material this is an expensive operation. Furthermore, the loss of revenue resulting from withdrawing the cars from service when so badly needed is large.

On the Buffalo, Rochester & Pittsburgh, to determine the benefits which would be derived from coating the interior of the cars with oil, we arranged some time ago when cars were shopped for exterior painting or were undergoing heavy repairs, to thoroughly clean and remove all scale and rust from the interior of the car by the use of the hammer and by blowing out with a compressed air jet. The sheets were then given a coat of oil with a paint spraying machine. The cars, after being put back in service, were periodically examined; we found that the oil evaporated very quickly, resulting in very little permanent benefit. At present we are experimenting with more cars, applying a coat of elastic paint with the spraying machine. We find the machine to give better results than can be had applying the paint by hand with a brush, as the corners and crevices around the rivet heads are better filled and all openings at the seams are penetrated by the paint spray. We find this practice to have some advantage and as long as the paint or oil lasts it retards the wasting away of the sheets. When we examine the cars which we have oiled or painted, after they have been loaded, we find

that much of the paint has been rubbed off in service by the loading and discharging of the lading. However, the principal wear is on the broad faces of the sheets and if the cars are kept constantly in service this wearing has a polishing or scouring effect which helps to offset corrosion.

If we direct our attention to the seams, corners, etc., and around the rivet heads, which are the vital points, we find that the same scouring effect is not noticeable, and that unless the coating has well protected the parts there will be a mass of rust and scale which constantly and slowly will destroy the steel, whether the car is in service or not, greatly weakening the structure and diminishing the life of the car.

*Discussion.*—In reply to a question by J. W. Gibbons of the Santa Fe, the author stated that the oil used is a Pennsylvania oil with a paraffine base. Mr. Gibbons stated that he believed it would be desirable to have tests made, using an oil which had an asphalt base. The cost for labor in doing this work on the Buffalo, Rochester & Pittsburgh is 28 cents per car. A committee was appointed to continue investigation on this subject. W. O. Quest (P. & L. E.) said that paint is of no use for the protection of the insides of steel freight cars, as it either burns or wears off. The Norfolk & Western has applied oil with a spray for protective purposes, and has lately changed to painting, using one coat of red lead and one of carbon black.

#### VARNISH REMOVER FOR REMOVING PAINT

George H. Hammond (Soo Line)—Varnish removers which soften varnish and paint rapidly, but evaporate slowly and do not separate or settle, are found to be the most economical and efficient.

With the use of proper appliances, such as spray machines, vacuum machines and specially constructed brushes, both hand and power, maximum efficiency is obtained. Thus equipped, and with skillful labor, the paint on the wall surfaces of the interior of a steel passenger car can be removed at a cost of 50 cents per foot of car length, 60 per cent of this being expended for labor and 40 per cent for material. The cost to remove the paint with varnish remover from the outside is practically the same, but the ratio of expense for labor and material is different, as it requires less labor, but more material, 45 per cent going for labor and 55 per cent for material. This estimate applies to steel plate construction with rivets exposed.

In shops where the necessary facilities are installed, a quicker and less expensive way to remove the paint from the outside of a steel passenger car is by sand-blasting. The cost is 7½ cents per foot of car length for labor. Sand, air and wear on sanding equipment will be approximately 2½ cents, making in all 10 cents per foot of car length, or \$8.00 for an 80 ft. car, a saving of 80 per cent of the cost of removing with varnish remover. These figures will, of course, vary. It is not practical to use the sandblast on the interior surface of a steel passenger car.

In summing up, it is believed that there is nothing superior to varnish remover for removing paint from the interior of steel passenger cars, also the outside of cars of steel construction imitating wood sheathing; but for the outside of cars having steel plate construction, sandblasting is far superior, costing only one-fifth as much as with the use of varnish remover.

*Discussion.*—The Santa Fe has successfully used the sandblast method for cleaning cars with the finish made in imitation of wood. The cost is 7.1 mills per square foot; as this is a beaded surface, the cost is probably a little more than would be necessary on a smooth surface. O. P. Wilkins (N. & W.) doubted if the sandblasting described by Mr. Gibbons could be carried out many times, as it would wear out the metal. In reply Mr. Gibbons stated that this has been considered, but the amount of removed metal is so small that the car can be sandblasted probably four times without



injury. It was decided by a vote that it was the consensus of opinion of the meeting that there is nothing superior to varnish remover for use on the inside and sandblasting for use on the outside of steel cars for removing paint.

#### USE OF SOAP IN CLEANING PASSENGER CARS PREPARATORY TO VARNISHING

W. Mullendorf (Ill. Cent.)—It is evident from the investigations of the foremost chemical authorities, and the experience of many of the leading railways, that soap and water cleaning hastens the destruction of paint or varnish and that it is not true economy to clean cars in that way. A large proportion of the leading railway systems do not use soap and water for cleaning cars, but depend on special car cleaners manufactured for the purpose.

*Discussion.*—The New York Central uses for cleaning cars a solution of muriatic acid, followed by a weak soap solution and pumice preparatory to painting. This does a very thorough job with a decrease in the labor necessary. The strength of the acid is varied according to the condition of the cars and is never more than three parts of water. For general use, nine parts of water to one part of acid was recommended. The Denver & Rio Grande washes all cars every sixty days with oxalic acid, and renovates them. On the Santa Fe it is considered that if the soap used is good and is properly handled, it will give satisfactory results. It was also brought out that the success obtained with acid cleaners depends largely on the manner in which they are mixed and used.

#### OTHER BUSINESS

Chicago received the greatest number of votes for the next place of meeting. The following officers were elected for the ensuing year: President, John Gearhart, Pennsylvania Railroad; first vice-president, J. W. Gibbons, Atchison, Topeka & Santa Fe; second vice-president, E. L. Younger, Missouri Pacific; secretary-treasurer, A. P. Dane, Boston & Maine.

#### "THE NEW TYRANNY"\*

By Samuel O. Dunn

President Wilson is the author of a recent book entitled "The New Freedom." It relates principally to the emancipation of our nation from the domination of predatory wealth. Personally, I value very little a process of emancipation which releases me from one form of tyranny merely to subject me to another, and instead of talking about "The New Freedom," I intend to say something about "The New Tyranny."

The greatest menace to democratic government in modern times, and especially in the United States, is the tendency of the people to break into sectional or class groups and to try by group action to get control of the government and use it to further the selfish interests of the group or groups in control. Some years ago it looked as if there was danger that the governments of our states and nation would pass under the control of a plutocracy. A comparatively few men had acquired an enormous economic power. In order to prevent interference with them in the exercise of this power for their own selfish ends they had gone into politics and built up potent political machines in the nation and in almost every state. Through their hired lobbyists and political machines the railways and other large business interests controlled nominations and elections. They secured the passage of many laws conferring special privileges and benefits on them and when they were unable to get such laws passed they were usually able to at least prevent the passage and enforcement of laws needed for the proper control of large business concerns.

\*Abstract of an address before the Annual Dinner of the Railway Signal Association held at Mackinac Island, Mich., on September 13.

But finally the situation became too unrighteous and harmful to be endured by the patience of the American people. They arose against the "malefactors of great wealth"; they destroyed their political machines and drove their lobbyists from the halls of legislation. They caused the passage and stringent enforcement of anti-trust laws, of laws for the regulation of life insurance companies, of laws for the regulation of railways. In their indignation they in many cases carried the movement for reform so far that it became one of persecution. Today, however, the group composed of persons described by a former president as "malefactors of great wealth" no longer dominates in our public affairs.

While the successful warfare against this group has been waging, another group has been trying to seize upon the power which the former has been losing. The development and growth of labor organizations has been coincident with the development and growth of large corporations and combinations of corporations. Like the corporation, the labor union has its proper place in our economic system. But the great labor organizations, like the great corporations, have not been satisfied to confine themselves to the performance of those functions which make them not only of benefit to their members, but also to society. Like the great corporations, they have reached out to seize political power in order to use it for their own purposes.

The railway brotherhoods, and the various unions composing the American Federation of Labor, have created lobbies which work openly to control nominations and elections to public office and to dictate the passage and administration of state and national laws. Lobbyists of great corporations, when other means failed, used money to accomplish their purposes. The labor organizations employ a more insidious, but not less immortal or effective, form of bribery. They tacitly or expressly offer to pay with their votes lawmakers and other public officials who help them to secure through class legislation the special privileges and immunities which they demand. The suffrage is conferred upon the citizen, just as public office is conferred on him, not for his own selfish purposes, but to promote the welfare of the nation. It is a prostitution of a man's suffrage to use it to secure unjust class legislation for the special benefit of himself or the class to which he belongs. It is an act of perfidy and dishonor for a public official to participate in enacting, or in securing the enactment of, unjust class legislation at the expense of the public in order to gain votes for himself.

But these prostitutions of the suffrage and of public office have become only too common, and as labor unions are supposed to represent many voters, their influence over government has waxed amazingly. Their leaders have succeeded the "malefactors of great wealth" as our modern feudal barons. This is especially true of the railway labor brotherhoods. For about 10 years now these brotherhoods have been engaged in securing in practically all of the states, and even at Washington, the adoption of numerous laws for the benefit of their members, and which impose heavy burdens directly upon the railways and indirectly upon the public. Such, for example, are the laws requiring extra men to be employed in train crews. They have also used their power to defeat laws which are greatly needed in the public interest. For example, more than one-half of all the people who meet fatal accidents on our railways are killed while trespassing, and yet the labor brotherhoods have repeatedly defeated anti-trespassing laws for no better reason than that in cases of strikes they would probably have the effect of prohibiting former employees from going upon railway property. Five thousand people must be killed every year while trespassing rather than that striking railway employees shall merely incur the risk of being kept off railway property if they strike.

The Sherman anti-trust law formerly was held to prohibit not only combinations of capital, but also combinations

of labor in restraint of trade and commerce. The labor organizations under the present national administration succeeded in getting the law so amended by the Clayton act as specifically to provide that it should not apply to combinations of labor.

And how numerous is the body of citizens who can thus dictate to our government? It is reliably estimated that of all the persons in this country engaged in "gainful occupations" not more than 6 per cent belong to labor unions. Therefore, to the extent that this group has got control we are being governed by a group whose members no more justify its dominance than the numbers of the "malefactors of great wealth" justified their dominance. The recent threat of a nation-wide strike on all the railways and the means which were adopted to prevent it showed in a striking and startling manner the amount of irresponsible power certain labor organizations have acquired.

The railway managements repeatedly offered to arbitrate all the matters in controversy. The vote to strike was actually taken. The strike itself seemed imminent. Then, at last, President Wilson intervened. But President Wilson did not insist on settlement as provided by law. He announced at once that the demand of the train employees for a so-called eight-hour day raised a question that was not arbitrable; that the railways ought to grant it at once, and that an arrangement should be made to investigate the other points in controversy.

The presidents of the railways having enough courage and sense of duty to decline such a proposition, there were two means available to the government for preventing the strike. One was promptly to pass legislation repealing the exemption of labor organization from the anti-trust law and making it a criminal offense for a strike to be ordered in railway train service until after an investigation by some public body of the points in controversy. That would have been the patriotic and courageous course to take. It was not the railways that were threatening to strike. It was the employees who were threatening to act precipitately and bring ruin and suffering upon the country, and, therefore, they were the persons to whom any special legislation required for the protection of the country should have been applied. The second course open to the government was to pass the legislation providing for a 20 per cent increase in wages, disguised as an eight-hour day, which the employees said was the minimum which they would accept before calling off the strike.

The government took this latter cowardly, unjust and outrageous course. It passed the law the strikers demanded, thus buying them off with a bribe of \$60,000,000 a year, which must be paid directly by the railroads and indirectly by the American people. It may be, however, that the bribe was not paid in real money. This law does not limit the number of hours that railway employees may work in a day. It merely limits the number of hours that the railway may require them to work before it pays them a day's wage. Now, while the government may be able constitutionally to regulate the working day of railway employees, it seems most questionable whether it can regulate their payday.

But suppose that it can, what does the regulation adopted by Congress actually mean? The law passed specifically provides that "eight-hours shall, in contracts for labor and service, be deemed a day's work and the measure or standard of a day's work for the purpose of reckoning the compensation of all employees who are employed in any capacity in the operation of trains." There are now many train service employees who work more than eight hours for a day's wage. There are also many in both passenger and freight service who make their run of 100 miles, which is now the equivalent of a day's work, in less than eight hours, and yet get a full day's pay for it. It is certain that under this law, if it should be upheld, the railways would have to pay

a day's wage for eight hours' work. But is it not equally obvious that the law prohibits them from paying any employees in train service a day's wage before he has done at least eight hours' work? The law does not say that eight hours or less shall be the standard of a day's work for the purpose of reckoning wages. It says that eight hours, no more and no less, shall be the standard. It would appear, therefore, that under this provision if the railways should pay any employee a day's wage for less than eight hours' work they would violate the law and subject themselves to its pains and penalties.

If the law really means not only that the railways must pay every man a day's wage when he has worked eight hours, but also that they must not pay a day's wage to any employee who has not worked eight hours, then the leaders of the brotherhoods, by getting this law passed, have destroyed all the arbitrary privileges and immunities which now enable their members in many cases to get a day's pay not merely for less than 10 hours, but even for less than 8 or 7 or 6 or 5 or 4 hours—privileges and immunities they have struggled 30 years to wring from the railways.

The entire situation shows clearly that under existing laws the country can never be free from the menace of disastrous railway strikes and that, therefore, some additional legislation must be passed specifically to remove this danger. In dealing with the railway labor problem and the conditions which have given rise to it and to which it is related, we must, however, go deeper and farther than we will go if we merely enact a law to provide for a compulsory investigation of disputes that threaten to interrupt transportation. As I have already indicated, the immunity which organized labor has secured from the law prohibiting conspiracies in restraint of trade and commerce, the special legislation which the railway labor brotherhoods have secured in many states and at Washington, and the recent disgraceful surrender to the labor organizations at Washington, are symptoms of a national disease of the most dangerous character. Are the patriotic citizens of this country going to remain inert and let this disease continue its ravages? Are they going to let the barons of organized labor secure a stronger and stronger hold on their government until this nation will be converted into a mere mobocracy? Or are they going to rise and attack and overthrow the new tyranny of organized labor as they have attacked and overthrown the recent tyranny of organized capital?

We must not, while we are enjoying a great but perhaps temporary prosperity, overlook the fact that our entire future as a nation depends upon the establishment of sound principles in our government and on their maintenance and application in such a manner as to do justice between all classes of our people, rich or poor, high or low. Permanent progress and prosperity cannot be based on cowardice and injustice in the government of a country and an inert disregard of these qualities by its citizens.

**SERBIAN RAILWAYMEN IN FRANCE.**—Since Serbia has been in enemy occupation, France has extended a warm welcome to the railwaymen of that country. A number, mostly men who have at some time or other performed their military service, recently arrived in Paris, where they were received at the Gare de Lyon and the Gare d'Austerlitz by representatives of the Orléans and Paris, Lyons & Mediterranean Railways. A number of the Serbian railway men have already settled at Tours, Orléans and Châteaurenault, where the Orléans company has organized special courses of study, under Serbian engineers, for teaching the men French, as well as for technical purposes. French engineers are aiding in this work, and in the meantime the Serbs are receiving regular pay. Altogether, the Orléans and Paris, Lyons & Mediterranean companies have accorded hospitality, of the most practical nature, to nearly 500 Serbian railwaymen.



## CONGRESS AND THE RAILWAYS

The Railway Business Association is sending out to its members Bulletin No. 19, entitled "Congress and the Railways," from which the following is taken:

Congress has organized a joint committee of its members "to investigate the conditions relating to interstate and foreign commerce and the necessity of further legislation relating thereto," and to report in January, 1917. Hearings have been set to begin November 20.

Proposals for measures to promote equitable adjustment of railway labor disputes will be dealt with separately and with them this leaflet has nothing to do, but the enormous increase in operating expenses compelled by the eight-hour law accentuates the necessity for general legislation designed to bring regulation into proper relation with the facts of the business as they exist.

### THE SLOW DOWN

(1) Improvement of existing railways and construction of new lines has been seriously retarded.

To find a five-year period in which the increase per cent in miles of duplicate tracks was smaller than 1914 over 1909 we have to go back to 1899 over 1894, a period of business disaster. Miles of track other than single increased 22.1 per cent, 1914 over 1909. This compares with 26 per cent, 1909 over 1904, and 34.5 per cent, 1904 over 1899. Miles of single track, indicating length of road, increased 1914 over 1909, 8.9 per cent. This compares with 10.9 per cent, 1909 over 1904, and 12.1 per cent, 1904 over 1899. On length of road, therefore, it is also necessary to go back to the panic in the '90s to find a smaller increase per cent than that shown in 1914 over 1909.

### COMMERCE THE FOUNDATION FOR DEFENSE

(2) Transportation development primarily for commercial and agricultural purposes is the foundation of transportation for defense.

Transportation facilities this year have been hardly anywhere equal to the strain and at some points have broken down utterly. Yet what is this traffic which the roads could not handle promptly? Before the tonnage connected with munitions manufacture and delivery began to move there was unemployment and privation, with meager railway traffic. The war requisitions of Europe were the basis of the activity since the fall of 1915. This American output of war fabrics has at no time equalled more than a small percentage of the requirements of even one first-class power. It does not begin to suggest the quantities which the United States would have to find if attacked by such a power.

We have shipped some clothing, food and supplies to belligerents. An American war would vastly multiply this. Soldiers, moreover, would be added to the traffic. The trains transporting men would have rights of way to which every freight train must defer. This would cut down the capacity of track and rolling stock for despatch of armament and other military commodities. Yet we are eye-witnesses that a mere modicum of the war traffic which an American embroilment would entail, superimposed upon lax general business, has exhausted our transportation resources. We cannot begin to make a defense machine out of a railway until we have first developed it into an instrumentality effective for business.

### APPREHENSION OF INVESTORS

(3) Cessation of railway development is due to the belief of investors that governmental influences will keep railway earnings too low in proportion to inescapable railway expenses.

Not even the great increase in gross earnings due to the carriage of war munitions and the accumulation of available capital accrued from munitions profits has availed to draw

new investment in appreciable volume into the improvement or construction of railways. Persons somewhat remote from railway management or from the processes of large-scale investment are prone to look upon any temporary improvement in railway earnings as obviating necessity for remedial action. Railway managers and those who have the responsibility of investment cannot dismiss their apprehension so lightly. The expenses of a railway it must meet in every year of the decade. Its resources are the total earnings for the decade. The condition of the company, therefore, is only to be gaged by setting the large earnings of one year against the small earnings or deficits of other years. Investors look forward past the fat year to the lean year. They insist upon assurance that railway earnings in ratio to railway expenses will not be held down below the danger line. They await correction of the defects in the regulatory system.

### PROBLEM IS NATIONAL

(4) Upon Congress in the main rests the burden of reorganizing the system of supervision over railways.

Railways, formerly local or state instrumentalities, have become interstate highways. Congress, having under the Constitution, power to regulate interstate commerce, has exercised that power in part. States have continued to regulate the same instrumentalities. Test cases carried to the highest court have established the supremacy of the national government over whatever factors may influence interstate commerce. The question involved is what spheres it is wise for the federal government at this time to take under its authority.

### MULTIPLE CHARTERS

(5) Incorporation and the regulation of security issues should be federal.

As corporations, most of the large railway systems are under conflicting regulation of more states than one. This especially affects them in the matter of capitalization. What is permitted in one state is forbidden by another. Even when the various masters concur, the process of obtaining sanction is long and costly.

### CHAOS IN RATES

(6) Supervision over rates which affect interstate commerce should be made federal by statute.

Rates, classifications and regulations affecting revenue are the subject of conflict between federal and state and between the several state authorities. This is in spite of the widespread belief that existing law as interpreted by the Supreme Court gives the Interstate Commerce Commission authority over all rates which influence interstate commerce. Some Interstate Commerce Commissioners doubt their power in this respect.

### POWER TO RAISE RATES

(7) The Interstate Commerce Commission should have power to fix minimum as well as maximum rates.

The Interstate Commerce Commission has authority, when declaring a given rate unlawful, to fix in its place the maximum which may be charged, but not to fix the minimum. Many of the most important adjudications by the Commission involve the relation of one rate to another. The Commission is unable, in readjusting a rate schedule for the primary purpose of eliminating discrimination, to protect the carriers involved as a whole from impairment of their total revenue.

### RESTRICTION, BUT NO PROTECTION

(8) Congress should by statute declare it the policy of the government to permit such rate systems as will yield the roads revenue sufficient to perform adequate service and to attract investments for improvements and extensions.

Protection to the revenue of the carrier is a fundamental

function not imposed upon the Commission by the law and vigorously repudiated as a proper function by some of the commissioners. It has constantly been urged that the Commission, under the language of the act, could only consider one rate at a time and never whole rate fabrics in the light of total earnings and total needs. The law, in other words, intends to prevent individual rates which would be too high, but does not intend to prevent rate systems which, as a whole, are too low.

It was proposed in connection with the eight-hour day legislation that the Interstate Commerce Commission should be directed to consider wage advances in fixing rates. The Commission should have a standing rule from Congress to consider, in fixing rates, not only wages, but every other factor affecting expense.

#### AUXILIARIES TO THE COMMISSION

(9) Congress should authorize the creation of regional sub-commissions appointed by the President, subordinate to the Interstate Commerce Commission, and exercising administrative jurisdiction over areas corresponding to traffic movement.

Shippers and railways complain that in the field where federal regulation is now exercised the Interstate Commerce commissioners are too overburdened to give personal attention to administration and are acting upon the reports of examiners. It is also said that administration is slow and complicated and that litigants are obliged to travel to Washington for hearings in matters which, while necessary to be adjudicated, do not justify such an expenditure of time and money. It is proposed to meet this situation by having sub-commissions, composed of men of such calibre as to be confirmed by the Senate, empowered to make orders which will be valid unless appealed to the Interstate Commerce Commission. The form which legislation should take will be determined by the usual process of hearings, conferences and general exchange through the platform and press. The general purpose is unity and order of regulation, strengthening of the federal mechanism of regulation and a statutory declaration of policy providing protection to railways where now the law prescribes restriction only.

### SAFETY POINTS FOR INVENTORS

By Parker Cook

Every week the United States patent office declares a number of interferences; that is a proceedings to establish by taking testimony, who is the first inventor where two or more inventors have filed an application covering substantially the same idea or subject-matter. There have been to date nearly 40,000 interferences before the proper patent office tribunals. If inventors will consider carefully what follows, their chances of prevailing in the matter of priority will be greatly enhanced.

It is of value to be familiar with a few of the rules followed by the patent office, to understand how it sets out to determine who was really the first inventor; and especially the five essential points or requirements that the office has the inventor start with. In these five requirements, the different arrangements or combination of arrangements of dates lead to different results in regard to the outcome of the interference. It is necessary therefore to have a clear conception in regard to these requirements, which the office requires the inventor to set out under oath after the interference has been declared, and really before the fight begins. These requirements are set out in what is called a "preliminary statement." When the office notifies two or more parties that their applications contain claims for substantially the same invention, they are each required to file a preliminary statement in which must be set out answers to the following questions (Rule 110):

*A*—The date of original conception of the invention set forth in the declaration of interference; *B*—The date on which the first drawing of the invention was made and the date on which the first written description of the invention was made; *C*—The date on which the invention was first disclosed to others; *D*—The date of the reduction to practice of the invention; *E*—A statement showing the extent of use of the invention.

There is also a requirement set out stating that the applicant shall give the number and date of any application filed abroad, but which we will not consider in this article. There is still another requirement stating that if a drawing has not been made, or if a written description of the invention has not been made, or if the invention has not been reduced to practice or disclosed to others or used to any extent, the statement must specifically disclose these facts.

Now let us skip to Rule 116, which is one of the most important of all the rules in regard to interference, and which must be taken up in conjunction with Rule 110, just mentioned: "The parties to an interference will be presumed to have made the invention in the chronological order in which they filed their completed application for patents, clearly disclosing the invention; and the burden of proof will rest upon the party who shall seek to establish a different state of facts."

In other words the party first to file his application in the office is known as the senior party and the burden of proof to establish all the dates set out in the former rule is placed upon the party that filed after the senior party or the party otherwise known as the junior party. It is therefore a great advantage to be the first to file the application as the senior party may literally rest on his oars while the junior party has to clearly establish all his contentions set out in the preliminary statement, which is often no small matter. It might be here mentioned that to try to establish the facts set out in Rule 110 testimony is taken and all exhibits and documentary evidence that can be used is produced to establish the matters set out; that is *A*, *B*, *C*, *D*, and *E* of Rule 110.

The first safety move is to file the application for an invention in the patent office as soon as it is carefully and completely worked out.

Let us consider now the five points as set out in Rule 110. First, taking up *A*; the invention as set forth in the declaration of interference means the claims of the application which are in interference, and which are then known as counts; that is claim 1 of an invention might conflict with claim 3 of the other party's, and these two claims would be known as count 1. As it is of course essential at the time of taking testimony to clearly substantiate all the dates set out in the preliminary statement it is well to try to connect the conception of the invention with some time, place, event or object, so that you can clearly establish this date of conception when called on in the taking of the testimony.

Considering now point *B*; the second part of this requirement has just been incorporated in the Rules of Practice; that is, since January 1, 1916. It is intended that this will not leave too much leeway for the inventor to make a sketch of the device and later read his sketch in an entirely different light. Moreover, in thousands of instances a party would allege that a sketch was made, but not preserved. It is more than likely that if a sketch is made and also a written description the matter will be preserved, and if not preserved it will count unfavorably for the inventor.

Therefore the second safety point for inventors is to make a drawing or sketch, not necessarily a scale drawing or a commercial drawing, but one that in itself would enable any other skilled in the art to fully comprehend and understand what was intended. Although no decisions that the author is aware of have yet been rendered in regard to the written description, it is naturally to be presumed that in this instance the description will not have to be a lengthy



or elaborate one. As the dates are as important as the sketches, it is of course well to put them on both the description and the sketches and also have them witnessed; or probably the best plan of all is to take the sketches and description before a notary and make a short affidavit that on such and such a date the sketches and description were made. This should be done immediately upon the completion of the description and the sketches.

Taking up now point *C*; as the testimony of the applicant himself has hardly any weight with the tribunals of the office, there has been incorporated this rule. It is therefore desirable to disclose the invention to others, so that they may be called on as witnesses to substantiate the inventor's statement as to conception, sketches, etc. As a safeguard, when you first conceive of the invention, or possibly after you have made sketches, and a written description, disclose or tell a few friends of the invention, discussing the gist of the matter with them, asking that they make a note of the date, or fix it in their mind with some other happening, so that if called upon they can be of material assistance to you. If you have a draftsman make the sketches or drawings, let him also keep some record of it as a draftsman always makes a good witness.

Now as to point *D*; possibly more could be said upon this subject than on all the other points combined, as it really counts more with the office than anything else, with the possible exception of Rule 116; but this we cannot always provide against whereas point *D*, or reduction to practice, is generally within possibility. This matter cannot be gone into fully but a few of the essentials may be set out. First, the filing of an application is known as a constructive reduction to practice, although it is not as persuasive as the actual reduction to practice which means the building and completion of an operative device, which is put into use. There is a difference between simply a test and a reduction to practice, but tests may result in reduction to practice. It will be readily seen that where the one inventor conceives of the idea and simply makes sketches and then files his application it will not be looked on as favorably, other things being equal, as the case of the man who not only conceives of the invention and makes sketches, but actually makes or builds one of the devices, tries it out, and has it in operation, or lets others operate it for him. The invention, although on paper in the first instance, might develop serious unseen difficulties, whereas in the actual reduction to practice it will either stand up under use, or fail. If it does stand up, it will have great weight with the office tribunals in deciding who is the first inventor. Therefore if possible, construct a device according to your conception, note and preserve the dates relative to the construction and the reduction to practice and preserve if possible the device itself. Of course if the invention is a large one, this cannot always be done, but if the device is built, be sure and preserve all records pertaining to it.

As regards point *E*; if the invention is a small one, the greater the use and the greater the number manufactured, the greater the weight with the examiner of interferences, the officer of the patent office before whom the matter is tried. This statement will be readily understood as the question of abandonment comes in here, in that if an inventor simply builds one of the articles he may abandon his rights to it by not furthering the matter. He will thus relinquish his rights to the inventor who may have filed later and conceived later, but who entered the field and gave the public the results of his invention. This naturally brings up the subject of laches, or delay, and the question of abandonment, but all that is necessary to avoid this point is to not delay unnecessarily between the "reduction to practice and the filing of an application," nor delay between the "conception and the reduction to practice" as the time will all have to be carefully accounted for, and it must be remembered that the law favors the diligent.

As mentioned earlier, there are a good many combinations wherein the outcome of the interference will depend. For instance the first to conceive and the last to file will have to give way to the second to conceive but the first to file, the second being diligent and the first guilty of laches. Some of these combinations cannot be guarded against but if the rule that "the law favors the diligent" be carefully observed the chances for prevailing are greatly enhanced.

Summing up briefly, therefore; first, file the application as soon as possible after its conception and completion. This will cover the points of diligence, laches and abandonment; second, fix the date of conception thoroughly in the mind; third, make sketches and descriptions and preserve them, and also affix the dates and have them witnessed or sworn to; fourth, disclose the invention to others, so that they may be relied on to substantiate your statements; fifth, reduce the invention to practice if possible.

### AN OPEN LETTER TO HENRY FORD ON THE WAGE CONTROVERSY

Henry Ford, the automobile manufacturer, recently wrote a letter criticising the course of the railways in the recent wage controversy. Frank Trumbull, chairman of the Railway Executives' Advisory Committee, has written the following vigorous open letter in reply:

"My attention has been called to a published interview with you, under date of September 2, in regard to the recent railroad wage controversy, and as it has not been contradicted I am making this answer public. Your conspicuous position gives you a wide audience and erroneous statements published in your name are, therefore, all the more dangerous and harmful and should not go unchallenged.

"You say that 'the real power back of them [the railroads] is located in and around Wall Street.' This is an inaccurate and threadbare generalization, frequently heard and quickly disproved by the facts.

"The real owners of our railroads are some 607,630 individual stockholders, excluding railway corporations and duplicate holdings. When allowance is made for the fact that some of these individual holders are brokers, holding in one name for several different owners, and that trustees or executors similarly hold for numerous others, it can be readily seen that the total aforementioned is an understatement.

"Moreover, if we add to the aggregate of stockholders all those who virtually own railroad bonds: insurance policyholders and savings bank depositors, of whom there are 30,000,000 of the former and 11,000,000 of the latter class, whose premiums and deposits, jointly, are secured by an aggregate ownership of railroad bonds totalling \$2,300,000,000, it is apparent that the ownership of America's railroads is not only widely, but democratically, diffused instead of being concentrated in the hands of a few individuals in 'Wall Street.'

"Broadly speaking, the bankers are simply middlemen, who buy railroad securities and sell them to the public. You refer to the railroad presidents as 'messenger boys for Wall Street.' I think you cannot cite a single instance of direction, either oral or written, from any Wall Street banker to any railroad president in connection with the discussion of the so-called eight-hour movement in the last few months; but, if you can, will you do so?

"You say: 'The railroads evidently are determined to get from the American public a still greater share of their earnings through freight rates, and that is what they are playing for.' If you believe, and can prove this statement, you owe a duty to yourself and to the nation to come forward with your proofs immediately. But since you use the word 'evidently,' I apprehend you will not attempt to substantiate what you must realize is not true, and which is cal-

culated to work both injury and injustice to the railroads.

"The railroads were not playing a game. The wage question was not of their seeking. They did nothing either to instigate or precipitate it. They were, on the other hand, unwillingly and irresistibly compelled to join issue with the employees, in an endeavor to maintain right and justice. They took a determined stand for democracy and its essential principles against class government and the rule of might, and their attitude has been approved very generally by press and public. Men of intelligence, certainly, see in their conduct a fitting sense of the obligation of trusteeship reposing in them for their owners, their other employees, and for the public at large, and a conscientious adherence to principle.

"You further say:

"If the roads were run more to serve the public, run more by the men who really have to operate them, run as railroad properties and not as mere instruments of financial juggling, we could have lower rates, better service, higher wages, and still leave a profit for every dollar legitimately invested. The roads could make double the profits at present rate of fares and pay all increases of wages demanded."

"In using the word 'roads,' I assume you mean all of the roads of the country, but perhaps you will list the roads which are now being used 'as mere instruments of financial juggling.' The gross earnings of the roads of Class One (excluding smaller lines) for the fiscal year ended June 30, 1916, were about \$3,400,000,000. The profit from the operation of these roads for the year, after paying taxes, hire of equipment and rentals, was about \$1,000,000,000, or only about seventeen times the reputed profit of the Ford Motor Car Company alone for the same period, and the \$1,000,000,000 referred to was not over 6 per cent return on the actual value of approximately 225,000 miles of road involved; that is to say, the \$1,000,000,000 was the amount available for interest on debt, dividends on stock, additions and betterments and reserves.

"As you are a student of economic affairs you doubtless know that the railroads of the United States have the lowest capitalization per mile of any civilized country in the world. You must know also that our railroads, in addition, pay the highest wages known to railroad labor the world over, and render service for the smallest compensation recorded by any country.

"Now, I am sure you will earn the further gratitude of one hundred million people if you will show how 'the roads' could double their profits. Bear in mind, that practically all of the expenses of a railroad are made up of labor and material. How would you save a billion dollars? Out of which items would you take it?

"The proposition of the railroads was that all these questions be arbitrated before some impartial tribunal and the facts established as a basis for judgment and action. They made no proposals 'to tie up the country' or 'to bring untold suffering to millions of people.' Such proposals came only from the heads of four highly organized bodies of railroad employees, representing the best paid labor in the world, and aggregating less than one-fifth of the total number employed in railroad service. As these men were asking for more than their share, 'the voice raised by the God of Greed,' to quote your words again, must have been in their behalf.

"It is just such ignorance of the facts about the railroad situation as displayed in your published statement that make imperative and obvious the need of public investigation and public knowledge before speech or action in these matters."

**RAILWAY UNREST IN SPAIN.**—The Spanish Government has issued a decree in regard to the recent railway strike, providing for the settlement of disputes by arbitration, and obliging the companies officially to recognize the men's trade unions and associations. There are further signs of unrest among the railwaymen at Saragossa, Barcelona and Valencia.

## TRAIN HANDLING ON HEAVY GRADES

By Edward F. McKenzie

Passenger Engineman, Pennsylvania Railroad.

In order to handle trains on heavy grades successfully, three things are necessary; viz.:

Knowledge of the physical characteristics of the road; obedience to rules, and good judgment.

The officers of the Pittsburgh Division of the Pennsylvania, realizing the difficulties incident to handling large trains on the different grades, and on account of the very large tonnage on this division have established at five terminals Motive Power Instruction Rooms in charge of a competent instructor; there every piece of the air brake is cut in sections and coupled to another active piece by a rod, so that the pupil can see what the inside looks like when it is working.

The instructor teaches his class in complete detail and at least every three years examines all enginemen and conductors. The firemen have to pass first, second and third year examinations; and with this intelligent co-operation from a whole corps of trained men good results are obtained.

We use the Westinghouse equipment and all road freight engines have two 9½-in. air pumps, or one 8½-inch cross compound pump, with a main reservoir capacity of from 54,000 to 74,000 cubic inches.

In some freight yards, terminal test plants are established and here, after a train is made up the inspectors charge it up and make a terminal test. This consists of full brake pipe pressure, 70 lb. first; a full service application of the brake; and all the cars and brake rigging, pistons, etc., are looked at. No piston can have less than 6 inches or over 9 inches travel. The brake rigging must be adjusted to suit these standards.

After seeing that all brakes are on, they are released and again looked at, and the result marked on the front of the train. A train crew receiving this train need only make the road test, which consists in pumping up full 70 lb. pressure and making a full service application. When the flagman or the engineman of the pusher sees the brake set on rear car he signals to release; and when you have done this you are ready to proceed. This road test, to make certain that all angle cocks are open, is the only means of knowing that you have all your train in service. It is the rule of the company to make it wherever cars are set off or taken on, or where an engine is cut off.

A terminal test must be made by trainmen on all cars before moving off any siding, in order to see if the brakes work, as otherwise the lawful percentage might be cut down; and in that case the cars would have to be put back on the siding.

On account of the grades on this division varying from level to nearly 4 per cent. special instructions are issued for the very heavy grades.

The air pressure maintained on trains running on these particular branches and the eastern slope of the Allegheny mountains is 95 to 100 per cent brake pipe. All retaining valves are set in 50 lb. position on loaded trains unless there are 15 or more cars together in a train which have the old style 15 lb. retainers; in that case all cars back of them have retainers set at 25 lb. Sixty per cent empty cars rates a train as empty and brake pipe pressure is 70 lb.; and only 60 per cent of retainers are set in the 25 lb. position.

Before turning the hill at Gallitzin (the top of the mountain), a terminal test is made by inspectors. After they report and the block signal shows proceed, the engineman makes a road test and is ready to go; first consulting with the conductor as to how many hand brakes will be used to help hold the train. This is the feature which the company leaves to the men's judgment. Having hauled the



train already 75 miles or more they have knowledge of its condition not possessed by anyone else.

As most trains consist of 60 to 100 cars they usually have four engines on; and great care must be exercised in starting in order to avoid damage to the cars. The majority of the cars have capacities from 55 to 70 tons.

Only the leading engine in front and the rear engine in the rear use steam until it is necessary to supplement their power by using the engines next to the train. If necessary to take the slack, the leading engine does it. If the train cannot be started after leading engine stretches it out the rear one takes the slack.

After starting at Gallitzin and as soon as the train gains speed the runner of the leading engine gradually shuts off, and allows the pushers to shove him through the tunnel; coming out, a 10 lb. to 12 lb. application of the brake has been found to be best, followed by more if this does not check the speed of the train; if it does slacken the train properly, the brake is released and the results noted. If the train moves along slowly, the retainers are doing good work and light applications of from 3 lb. to 5 lb. will take you down alright. If the train starts to gain speed after the first release, the next application must be heavy and must be held on until the train is nearly stopped; for it is evident the retainers are not holding well.

A certain number of minutes must be put in between each two telegraph offices—the time being 40 minutes for the whole distance of 12 miles.

The rules require one blast of the whistle as a signal for train men to apply more hand brakes; for two blasts the crew will apply all of the hand brakes which work with the air, and the flagman gradually opens the angle cock on the rear end of the train. Continuous calling for brakes, means no air and the crew must apply all brakes on the train; and then the engineman must not apply air brakes until he signals "off brakes" to avoid injuring the men who are using brakes and pulling opposite to the air apparatus.

If a train breaks, or the engine is cut off, a sufficient number of hand brakes must be applied to hold the train, beginning at the front end on descending grades and the rear end of ascending.

On some of the branches, the grades are from 2.6 feet to 3.8 feet to the 100 feet, and on the latter, all retainers and hand brakes are used, and as the road test before starting is made with all hand brakes on, enough hand brakes are let off at the front end of the train to get started and immediately put on again, the brakemen using a whole pick handle for a brake stick.

On the heaviest grades, which include these steep humps and the east slope of the Allegheny mountain, 100 lb. brake pipe pressure is used and the engineman must so manipulate the brake that the pressure will not fall below 65 lb. He must stop and pump up before proceeding, if it does fall below 65 lb.

The rule to not allow air pressure to fall below 65 lb. on specified branches and the east slope of Allegheny mountain, was made necessary when engines had only one air pump and smaller reservoirs, and when the train equipment was not kept up to the present standard. The men were not so expert in handling trains, and the 65 lb. mark was the lowest the company felt a man could stop with. Having stopped, the hand brakes held the train while the air pressure was pumped up.

Poor or leaking retaining valves (which hold air in brake cylinders while recharging train), brake pipe leaks, or poor manipulation of brake used to necessitate stopping sometimes, on the east slope and on some of the branches. This has been almost entirely overcome by the schooling given to the men of all departments; by the better upkeep of equipment and especially by the schooling given to the en-

ginemen; and it is a rare thing to have to stop to regain air pressure.

If a train is under control at the bottom of the mountain, the engineman signals off brakes and the crew turn down the retainers, beginning at the rear of the train.

All firemen promoted to the position of freight engineman must take five trains down the east slope of the mountain successfully under the eye of a special engineman before being allowed to haul a through train alone.

The number of freight cars taken down the eastern slope, Gallitzin to Altoona, in the year 1913, was 1,155,331, or an average of 3,165 cars a day. These figures will give some idea of the high efficiency required. The monthly totals were as follows:

January .....	101,934	July .....	95,825
February .....	91,545	August .....	98,530
March .....	99,359	September .....	91,520
April .....	87,723	October .....	101,773
May .....	97,896	November .....	94,428
June .....	94,382	December .....	100,416

#### PASSENGER TRAIN HANDLING

In order to avoid annoyance to passengers, the company requires, where two engines are coupled to a train, that the lead engine do the starting or taking slack when necessary, the engine next to the train following up when needed.

At all terminals a complete test of the brake is required. This consists of 110 lb. brake pipe pressure, a full service application of the brakes, to be looked at by the inspector who signals with the communicating whistle-signal to release.

The inspector looks at all the cars to see if the brakes are released and notifies the engineman and conductor how many cars are in the train and on how many the brakes are working.

In stopping, the first reduction is about 8 lb., followed with such other reductions as will reduce speed to about 15 miles an hour, releasing and making second application to stop, holding this on until stopped, if nine cars or over; if less than 9 cars, brake is released just before stopping, to avoid a rough stop.

At top of mountain (Gallitzin) a running test of 8 lb. to 10 lb. is made to be sure the brakes are all right. Going down the eastern slope of the mountain light applications are the rule. This makes a steady run.

In slackening speed for switches and curves a reduction of 8 lb. is made, followed by enough to come within the required speed limit. The idea of the initial reduction of 8 lb. is on account of the heavy Pullman cars on the rear of the trains and to insure the application of the latest designs of brake equipment, which require at least 6 lb. to operate them.

An engineman, being promoted from freight to passenger, after passing all other tests must take one train over the division and down the eastern slope of the mountain successfully, under the eye of an assistant road foreman; and must be recommended by all the passenger enginemen with whom he has made trial trips before being allowed to take a train out alone.

Since March 1 last, all enginemen who have successfully passed their air brake examination, and have proved their efficiency in handling trains, need only appear for instructions on old brake equipment every two years; but they must pass a new examination if they fail to appear, or if they have had an air brake failure; and of course there are new examinations if new brake equipment is added to that which has been in use.

RAILWAYS IN SPAIN.—The total length of the railways in Spain is now 9,377 miles, of which more than three-quarters is of standard gage. The receipts of the railways decreased \$3,000,000 in 1914, from receipts of 1913.

# Roadmasters' Thirty-Fourth Annual Convention

## Abstract of Proceedings of an Unusually Successful Meeting of This Association Held This Week in New York

THE thirty-fourth annual convention of the Roadmasters' and Maintenance of Way Association was held at the Hotel McAlpin, New York, on September 19 to 22. The convention exceeded all previous records in attendance, over 250 members registering. An important feature contributing to the large attendance was the placing of a special train at the disposal of the Western members on which about 175 roadmasters, supply men and members of their families came from Chicago.

The officers of the association during the past year were, president, Coleman King, supervisor, Long Island Railroad, Jamaica, N. Y.; vice-president, M. Burke, roadmaster, Chicago, Milwaukee & St. Paul, Chicago, Ill.; second vice-president, A. Grills, general roadmaster, Grand Trunk, St. Thomas, Ont.; secretary, P. J. McAndrews, roadmaster, Chicago & North Western, Sterling, Ill.; treasurer, W. H. Kofmehl, roadmaster, Chicago, Milwaukee & St. Paul, Elgin, Ill. The convention was called to order at 10 o'clock Tuesday morning by President King, who introduced J. M. Rice, general secretary of the Railroad Y. M. C. A. of New York, who opened the convention with prayer.

### RALPH PETERS ADDRESSES MEETING

Ralph Peters, president of the Long Island Railroad, welcomed the convention to New York on behalf of the railways. After paying a tribute to the loyalty and efficiency of the roadmasters as a class, and citing numerous experiences arising in his personal contact with them as an operating officer, he said in part as follows:

"Let me suggest that you consider among other subjects how to restore the old time loyalty and faith of the mass of employees, as well as of the public, in the integrity and honesty of those conducting railway business. You roadmasters, through your section foremen, and your general organization, are close to the farmers and to the local population along the lines of your respective roads. You know that your executives as well as your operating and maintenance officers are striving at all times to upbuild their properties, to give good service and to increase the traffic. You know how we are bowed down by rigid laws and regulations especially in the manner of accounting for all the work that we do so that proper charges may be made for depreciation for property abandoned, for additions and betterments and all the numerous details that have been placed upon the maintenance department in recent years, so that today practically every section foreman must have a clerk to keep his time and distribution books, while a supervisor or roadmaster must have a large force to make out all the reports required of him by the Commission.

"These things are the result of a lack of appreciation by the general public of the constructive work and upbuilding that is being done by the railroads. You men, by the force of example, as well as by the word of mouth can make friends for your companies, can make the people along the lines of your road understand definitely what the real facts are concerning the railroads, and the railroad management.

"The officers responsible for your work are just as devoted and faithful in their efforts to get successful results as you men are individually. Trust in your officers and join with them in trying to put the railroads in a proper light before the people of the country in order that those who are elected to the legislature, to congress or to higher positions may stop the foolish, unreasonable multiplication of laws affecting

every branch of the railroad service; laws that are depriving men of the individual rights guaranteed to them by the constitution. We all know your loyalty. We all know and appreciate your honesty, sincerity and fidelity as displayed in your everyday work. Let the people you come in contact with everywhere know that every man in the railroad service is loyal and faithful in the discharge of his duties and is entitled to the respect of the community in which he lives. This will help the whole railroad situation more than anything else I can think of."

James Burke, superintendent, Erie Railroad, Chicago, and one of the pioneer members of this association, replied to Mr. Peters on its behalf. He was followed by E. T. Howson, engineering editor of the *Railway Age Gazette*, who spoke on "The Objects and Ideals of the Association."

Marcus M. Marks, president of the Borough of Manhattan, welcomed the association to New York on behalf of the city. He was followed by W. M. Camp, editor of the *Railway Review*, who spoke on "The Roadmaster"; by Robert Black, president of the association in 1894, who spoke on early reminiscences of this association before the formation of the American Railway Engineering Association, the Railway Signal Association and the other organizations in this branch of railway activities, and by J. V. Neubert, engineer of track, New York Central, who emphasized particularly the importance of the section foreman to the railway.

In his presidential address, Coleman King reviewed the activities of the past year. He stated that the number of new members received was larger than any previous year in the history of the association. He urged close attention to the sessions of the convention and participation in the discussion of the reports presented.

The report of the treasurer showed a balance of \$714.55 in the treasury, a material increase over last year.

### SEASONABLE DISTRIBUTION OF FORCES

In general the committee is of the opinion that all regular section work can be carried upon a practically uniform basis without regard to geographical locations or climatic conditions. The actual time of year, however, to start and finish work must depend upon the local conditions of the particular section or line.

The committee is in favor of a monthly payroll allowance and a yearly material allowance. A monthly payroll allowance gives a chance for quick curtailment in expenses which invariably affects the maintenance department first and at the same time gives maintenance officers opportunity to keep their payroll expenses well in hand. Heavy maintenance work often shows up quickly which cannot be foreseen and provided for in a yearly allowance. A yearly material allowance permits the company to purchase material at advantageous prices.

The committee is not in favor of standard maintenance forces the year around.

If section work could be distributed throughout the year there is no question but that a uniform force would be desirable and efficient.

The minimum "winter force" should be used, outside of handling snow and ice, in regaging and rolling rails, tightening spikes and bolts, repairing right-of-way fences, shimming, cleaning up right-of-way and ditching. In the late fall or early spring all ties for the next year's renewals should be distributed by work trains upon sections along the line



of road where they are to be applied. As soon as the frost is out of the ground, the entire section should be gone over, taking out shims, lining track and surfacing up bad spots. The full allowance of summer forces to take care of heavy section work should be put on about April 1. Tie renewals should start about this time in main tracks and be completed not later than July 1. At the completion of the tie renewals in the main tracks, these tracks should be surfaced out of face, and the alinement corrected where necessary. Following the main track work in the late summer, come the tie renewals and other work on sidings, including the renewal of switch timber. Track work should be discontinued a sufficient time in the latter part of August to permit the mowing and cleaning up of the right of way.

Only in emergency cases should section forces be required to lay new rail or take care of new ballast, which ought to be handled by extra gangs. The size of gangs should be determined by the amount of work to be done. At least half a day per week, preferably Saturday afternoon, should be devoted to cleaning up around station grounds, freight drive-ways and station buildings.

The final work of the season is the shaping up of shoulders, widening ditches, trimming grass lines and going over the track for any poor surface or line which may have developed after the heavy summer travel. The committee recommended a monthly payroll allowance and a yearly material allowance.

M. P. CONDON,

New York, New Haven & Hartford (chairman).

**Discussion.**—That part of the report relating to the maintenance of uniform forces throughout the year created a great deal of discussion and revealed a strong division of opinion. P. J. McAndrews (C. & N. W.) advocated latitude in the building up of winter forces. He did not believe that an excessively large force should be retained throughout the winter, but that it was possible to arrive at a practical mean. All supervisors want more men and if they secure them, they can find sufficient productive work to keep them busy. He did not believe, however, that any capable supervisor would advocate employing more men than he thought the work actually justified.

Coleman King (L. I.) took issue with the committee and strongly advocated a permanent section force. This system has been employed on his line during the last four years and as a result he has been able to effect a considerable reduction in the number of men employed because of their increased efficiency. The road is now in better condition than when the permanent track force system was inaugurated, in spite of the fact that a smaller number of men are now employed. During the present year, when most of the roads have been suffering from a severe shortage of labor, this condition is evident only to a slight degree on the Long Island. He believed that a road is ahead at the end of the year, even if the company pays for some unproductive time during the winter, because of the increased efficiency secured from the experienced men during the summer.

C. T. Kimbrough (Indiana Harbor Belt) stated that he had been able to hold practically all of his men this summer to whom he had given employment last winter, although adjoining roads were very short of labor.

W. Shea (C. M. & St. P.) stated that he believed the sole cause of a shortage of track labor lies with the section foreman. This man is the only one who comes in direct contact with the track laborer. He stated that he has not a single foreign laborer on his line, but that by careful attention the foremen are able to secure all the native labor they desire. He advocated maintaining the position of section foreman in such a way that a man is placed on an equality with other artisans in the community in which he lives and that his family shall be able to enjoy the same privileges enjoyed by those of similar rank.

J. B. Oatman (B. R. & P.) strongly advocated a permanent force. He now has only 75 per cent of his full force, but of the men remaining in his employ, practically all are those with one year of service or more. He has lost practically none of the men held during last winter, even though contractors and others have offered higher wages. He advocated taking good care of the men, protecting them in their tenure of employment and seeing that the company provides comfortable and well-maintained houses for them to live in. He believed that six men employed the year round will do more work than four employed in the winter and eight in the summer.

F. Barnoski (C. M. & St. P.) stated that one experienced man is worth two inexperienced ones and that for this reason he favored a thorough trial of the system whereby permanent forces are maintained.

After further discussion the report was amended to read that the association favors going towards the plan of more uniform maintenance forces, wherever possible, and entirely, where practical. To be consistent the association then voted to eliminate paragraphs b, c, d and e of section 3 and sections 4, 5 and 6 entirely.

A recommendation of the committee in favor of a yearly material allowance created further discussion. W. Shea opposed a yearly allowance of material because of the inability of a road to determine the amount of work it could undertake so far in advance, because of variations in earnings.

Henry Ferguson (G. T.) stated that he has been working on monthly and yearly allowances for some time and has found that they work out to considerable advantage in normal seasons. In a year such as this, when both materials and labor are difficult to secure, the amount of work which it is possible to do is governed more by the amount of material and the number of men which can be secured than by the amount of money which is available.

#### ANCHORING TRACK

Tracks creep in the direction of heaviest tonnage, fastest speed and descending grades on single track and in the direction of traffic on multiple tracks, the creeping conditions in either case being aggravated by a soft or springy condition of the roadbed, often found in low or wet districts. The creeping of rails and ties causes track to become rough, and shortens the life of the rails through a disturbance of an equal and proper expansion at the joints, which open at the points of least resistance and close entirely where the creeping tendency is resisted.

Where light ballast is used it is noticeable that the outside rail of double track creeps more rapidly than the inside rail, which causes joint ties when spiked in slots to slew across the track at more or less of an angle, this condition causing bad alinement and uneven gage and contributing very much to poor riding and in a limited way to unsafe track conditions. The correction of these conditions entails a large expenditure for labor and is damaging to ties through frequent spacing.

A most dangerous track condition resulting from creeping, is the disturbance of alinement at railroad crossings, disturbances of line and especially of gage at cross-over switches and sun kinking of track on portions of the line where expansion closes during cool weather.

Many and varied have been the efforts put forth to prevent the creeping of track, the most common of all being the spiking of slots in angle bars; or—antedating the use of angle bars—spiking in slots cut in the ends of the railbase or cut out of the base at quarters and centers. This helped some, while the slot spike held.

After the adoption of angle bar joint fastenings, holes were drilled in the web of the rail and either an entire or more often a half angle bar was bolted to the rail at centers so that the slots could be spiked for anchorage. This served

very well until the corners wore off the slots or partly cut the spikes so that the angle bar worked by, or often pushed out of line or gage. If this did not occur the tie was crowded forward.

Under the conditions described, it is not surprising that some one started to design a separate appliance to prevent rails from creeping. Persistent effort was finally rewarded and for a number of years rail anchors or anti-creepers have been available that will anchor track, and which if properly applied in quantities commensurate with the traffic conditions, will effectually hold the rails where originally laid.

#### THE USE OF RAIL ANCHORS

Very little argument should be required to convince the most skeptical as to the saving resulting from the use of efficient rail anchors. An annual saving approximates \$250 to \$400 per mile which is otherwise spent in driving back rail, squaring up slewed ties, renewing ties which have had their service shortened by former spacing, and surfacing tracks that might have served in a satisfactory manner with a little and comparatively cheap smoothing up if the road-bed were not disturbed by creeping and by driving back the rail and in spacing ties.

No set rule as to the number of rail anchors to use per mile can be made, as local conditions, such as swamps, undulating subgrade, descending grades, heavy braking districts, etc., govern. It is our judgment, however, that, under favorable conditions, with stone ballast and heavy section rail, not less than four anchors to a 33-ft. rail should be used. These should be placed without any reference to the joints, but should always be opposite each other and against the same tie, one pair preferably in each quarter rail length.

The cost of rail anchors in place is estimated below:

Four anchors per rail, 1,280 per mile at 16 cents each.....	\$204.80
Labor applying at .013 each.....	16.64
Total .....	\$221.44

It is apparent from this that the cost of material and labor in the application of this number of anchors is less per mile than for one readjusting of track affected by creeping. Assuming that the anchors will prevent creeping, there can be no consistent argument against their general use where necessary.

*Discussion.*—T. F. Donahoe (B. & O.) thought that the figures given in the report, of \$250 to \$400 necessary to correct conditions created by the creeping of rails, was too high in many instances. P. J. McAndrews (C. & N. W.) thought that this figure was correct in many cases if the loss of material as well as of labor was considered. Driving rails back results in damage to the rail and to bolts and other track materials.

The entire question of the advisability of anchoring single tracks created considerable discussion. J. V. Neubert (N. Y. C.) stated that his road has applied more anchors on single tracks than on multiple track lines. The instructions are that anchors shall be used wherever needed on all main tracks. E. Keough (C. P. R.) stated that he has applied anchors to hold the track from moving in either direction on many single track lines, particularly in the muskeg country.

C. Hickey (M. C.) emphasized the necessity of applying anchors in the vicinity of interlocking plants, drawbridges and other points where the results of rail creeping are particularly serious. He advocated the use of at least two anchors per panel on all double track roads and as many as six per panel where necessary to restrain the movement of the rail. He has found that the creeping of rails seriously affects the maintenance of insulated joints. All anchoring should be done at the point of origin rather than at the point where its serious results are noted. If anchors are applied only at the point of trouble, serious results may follow. Only a close inspection of the track will determine the proper number of anchors required.

At the close of a discussion on this subject, J. V. Neubert presented an analysis of 25,550 derailments of main and side tracks in which it was found that 32.5 per cent were due to defects of equipment, 51.9 per cent to operating causes, 11.4 per cent to unavoidable causes, and 4.2 per cent to defective maintenance of way.

#### CROSS TIES

George E. Rex, manager of treating plants, Atchison, Topeka & Santa Fe, delivered an illustrated lecture on Cross Ties before the convention on Wednesday morning, of which the following is an extract:

From a monetary standpoint ties are second in importance only to labor in the maintenance of way department. Accurate statistics of tie consumption are difficult to obtain, but the last official statement of the census bureau (1911) showed 401,653 miles of railway tracks with an annual renewal of 135,053,000 ties or an average of 336 ties per mile of track, which gives an average life of somewhat less than nine years. Of this amount only 23 per cent was treated.

The Santa Fe was one of the earliest roads in the United States to undertake the preservation of ties. It has been continually treating its ties since 1885, until today of the 30,422,416 ties in the tracks of the parent system covering a mileage of 9,552 miles, over 80 per cent of the ties are treated, and as far as possible every tie that goes into the track, including white oak, is now treated. The result of this practice is shown by the statement that while an average of 336 ties is replaced per mile of track annually throughout the country we have reduced our renewal to considerably less than 200 ties per mile, which indicates an average life of 15 years.

Of recent years the treatment of ties has made such rapid strides in affording protection to inferior timbers that if their mechanical protection could be controlled as it should be, ties could be treated in such a manner that the railroads could be absolutely secured of 20 years life from them. Treatment alone cannot accomplish this result, though it is the largest single factor in doing so. In treating ties one should be sure that the sap wood is early impregnated and the heart wood will then last if the treated area is sufficient to compel every bit of moisture in the timber to pass through the treated layer of wood, and become thoroughly sterilized.

The way to get the full benefit of treatment is to adopt the four following steps: (1) Insure a sound interior condition of the tie. (2) Bore a hole for the spike so that it does not break down the fibre. This will also assure treatment around the spike hole. (3) Make two perfect parallel bearings for the rail, by adzing the tie before treatment. (4) Stamp the tie with the date of treatment, kind of wood and the weight of rail for which it is bored.

In conclusion, treatment and mechanical protection of ties cost money, but if these methods were put in general practice the average life of ties as shown by the census in 1911 can be more than doubled, which will mean a large saving in dollars.

#### UNIFORM SPACING OF TIES

Cross ties in main track should be evenly spaced, a uniform distance being maintained between the edges of ties instead of spacing them a uniform distance center to center. With the common practice of using 7-in. by 9-in. squared ties and 20 ties per 33-ft. rail, a distance slightly more than 11 in. between the edges of ties is provided, while with ties having an 8-in. face, and using the same number per rail, the space between ties will be 13.8 in.

Ties should be spaced regardless of joints, which can be done where no reinforcement extends below the base of rail or the top of tie. Where the spacing is uniform and with ties having a nine-inch face the portion of rails within the



joint fastening will be supported either by two ties near the ends of the joint or by one tie near the center, thus insuring at all times either a suspended or a supported joint, either being considered satisfactory by most track engineers.

This method of tie spacing will give a more even bearing on the roadbed and an even working of the track under traffic. After careful consideration, we have reached the conclusion that uniform spacing of ties throughout the entire track structure is more important than the arbitrary spacing at joints.

Respacing the joint ties in connection with the relaying of rail throws that portion of the track on a softer roadbed than the rest of the track, and even with the most careful handling of the work it is necessary to surface the track immediately. This could often be avoided if the ties were spaced without regard to joints.

From information from various parts of the country, we estimate the average cost of respacing joint ties and surfacing track (on account of respacing) to approximate \$350 per mile on a stone ballasted line where rails are laid with staggered joints. The adoption of the uniform spacing of ties and the elimination of special spacing at joints, therefore, means a large annual saving to our railways.

#### ELIMINATION OF SLOT SPIKING

The principal reason that joint fastenings were slotted for spiking was to prevent rail creeping. This, we know, was not effective and we believe that the use of joint fastenings as rail anchors was imposing an additional burden on the joint, which has always been the weakest part of the track structure.

The result of this anchoring at joints was and is apparent in several ways, which tend to weaken track and increase maintenance expenses. Joint ties were slewed out of proper position, slots in angle bars became worthless with the stripping off of the bases of bars by the strain of resisting the rail creeping, an extra strain was placed on track bolts, which caused much of the stretching so often blamed on the ignorant track laborer.

To maintain good track under any ordinary conditions it is not necessary to have joints slotted for spiking, and we believe that the elimination of slots and punch holes in joint fastenings adds much to the strength and life of the joint, reduces maintenance costs through avoiding disturbances of track at the joints, and that track will be more satisfactory with the non-slotted joint than when a slotted and spiked joint is used for anchorage. This, however, is only feasible where rail anchors are used in sufficient numbers to keep the rail from creeping, and we believe that track creeping can be prevented by the use of rail anchors at a reasonable cost, and that a considerable saving can be made in maintenance costs by their use.

P. M. DINAN,

Supervisor, Lehigh Valley (chairman).

#### EQUATING TRACK VALUES

The primary purpose of a study of Equating Track Values is to determine how the proper standard of maintenance may be obtained best and most economically and at the same time assign equal or equivalent duties to all trackmen. The constantly increasing cost of labor and material required to maintain track in proper condition to handle the present exceedingly heavy modern trains, is now one of the most serious questions before the railroads. It is, therefore, of vital importance that the cost of track work should be subjected to careful analysis.

It is the opinion of the committee that this investigation should be conducted in the following manner: (a) Classification of railroads on the basis of traffic handled. (b) Determination of the proper standard of maintenance for main track, sidings, switches, etc., and the relative amounts

of work required to attain same. (c) The selection of special test sections from which accurate records of the distribution of labor shall be kept in order to obtain the above information. The committee has adopted forms showing the manner in which the distribution of labor is to be kept, and is now collecting data from test sections on eight different railroads. These forms are being filled out each month and will be summarized and the results analyzed at the end of the year.

In addition to the statistics on labor the committee is also collecting information in regard to the general characteristics of the test sections; that is mileages, the number of switches, weight of rail, kind of ballast, ties, drainage, subgrade, curvature, gradients, weather conditions, etc., all of which are of vital importance in determining the final equating values.

From present available data the committee has prepared the following table of Equated Track Values for practical application, realizing that these figures may be more or less modified by the results obtained from actual tests:

Class	Force, one foreman and	Equiv. mileage or sect.	Men per mile with foreman	Men per mile without foreman	Miles per man with foreman	Miles per man without foreman
A. Double track. S	6 men	9	0.78	0.67	1.29	1.50
Lines ..... W	3 men		0.44	0.33	2.25	3.00
A. Single track. S	4 men	6	0.83	0.66	1.20	1.50
Lines ..... W	3 men		0.66	0.50	1.50	2.00
B. Single track. S	4 men	7	0.71	0.57	1.40	1.75
Lines ..... W	2 men		0.57	0.43	1.75	2.33
C. Single track. S	3 men	8	0.50	0.37	2.00	2.67
Lines ..... W	2 men		0.37	0.25	2.67	4.00

Each supervisor should have a permanent extra gang on his district on the following percentage of the actual main line and siding mileage (not equated):

Class A—Summer, 10 per cent; winter, 5 per cent.

Class B and C—Summer, 6 per cent; winter, 3 per cent.

#### PROPOSED EQUATED TRACK MILEAGE VALUE

- 2 miles of passing track equal 1 mile of main track.
- 2½ miles all other sidings equal 1 mile of main track.
- 15 switches equal 1 mile of main track.
- 24 single derrails connected with tower or switch stands equal 1 mile of main track.
- 12 single track railway crossings equal 1 mile of main track.
- 15 single highway crossings (public roads) equal 1 mile of main track.
- 10 single highway crossings (city streets) equal 1 mile of main track.

#### CLASSIFICATION TRACK

Class A railways are those having more than one track, or a single track with the following traffic per mile:

Freight cars per year equal 150,000, or 5,000,000 tons.  
 Passenger cars per year equal 10,000.  
 Maximum passenger speed of 50 miles per hour.

Class B roads are those single-track lines having the following traffic per mile:

Freight cars per year equal 50,000, or 1,670,000 tons.  
 Passenger cars per year equal 5,000.  
 Maximum passenger speed of 40 miles per hour.

Class C lines are single-track lines not meeting the minimum requirements of Class B.

A. GRILLS,

General Roadmaster, Grand Trunk (chairman).

#### ENTERTAINMENT FEATURES

Wednesday afternoon was spent on an inspection trip over the Long Island between the Pennsylvania Terminal, New York, and Long Beach, on Long Island. At the latter point a demonstration of the pneumatic tie-tamping machine was witnessed. On Thursday afternoon the members and guests made an inspection of the Grand Central Terminal and the electrified portion of the New York, New Haven & Hartford between New York City and Stamford, Conn. On Friday afternoon the party went to Asbury Park on the Central of New Jersey boat, returning to Jersey City by rail.

The annual banquet given the Roadmasters' Association by the Track Supply Association was held in the McAlpin Hotel on Thursday evening. About 250 roadmasters and engineers of track were present. Short addresses were made by Judge Tompkins, of the New York Supreme Court; by F.

D. Underwood, president of the Erie Railroad, and by others.

#### ELECTION OF OFFICERS

The following officers were elected; President, M. Burke, roadmaster, C. M. & St. P., Chicago; first vice-president, A. Grills, superintendent of track, Grand Trunk, St. Thomas, Ont.; second vice-president, J. B. Oatman, B. R. & P.; secretary, P. J. McAndrews, roadmaster, C. & N. W., Sterling, Ill.; treasurer, W. H. Kosmehl, Elgin, Ill. Member of executive committee, J. W. Powers, supervisor, New York Central, Oswego, N. Y. The 1917 convention will be held in Chicago.

#### THE TRACK SUPPLY ASSOCIATION

The fifth annual exhibit of the Track Supply Association was held in a room adjoining the convention hall. Over 60 firms exhibited devices, a number larger than at any previous convention.

The officers of the Track Supply Association for the past year were: President, F. A. Preston, the P. & M. Co., Chicago; vice-president, R. A. Van Houton, Sellers Manufacturing Co., Chicago; secretary-treasurer, W. C. Kidd, Ramapo Iron Works, Hillburn, N. Y.; members of executive committee, E. M. Fisher, Fairbanks, Morse & Co., Chicago, Ill.; E. T. Howson, *Railway Age Gazette*, Chicago, and J. J. Cozzens, Union Switch & Signal Co., New York.

The Railway Supply Association, at its meeting on Thursday morning, elected the following officers for the ensuing year: President, R. A. Van Houton, Sellers Manufacturing Co., Chicago; vice-president, E. T. Howson, engineering editor, *Railway Age Gazette*, Chicago; secretary-treasurer, W. C. Kidd, Ramapo Iron Works, Hillburn, N. Y.; executive committee members, F. Barbey, Frictionless Rail Company, Boston, Mass., and J. J. Cozzens, Union Switch & Signal Company, New York.

The firms exhibiting with the names of their representatives and their exhibits are given below:

#### LIST OF EXHIBITORS

Ajax Rail Anchor Co., Chicago, Ill.—“Ajax” rail anchors. Represented by H. G. Elfborg, Paul Hoffman and G. N. Holmberg.  
American Hoist & Derrick Co., St. Paul, Minn.—Transparent photographs of the “American” ditcher at work. Represented by Edward Coleman and Frank W. Hatten.  
American Steel & Wire Co., Chicago, Ill.—Woven wire fencing and steel posts. Represented by A. W. Fronde.  
American Valve & Meter Co., Cincinnati, Ohio.—“Anderson Economy” switch stand, the “Anderson” interlocking switch stand and switch lock. Represented by J. T. McGarry and F. C. Anderson.  
Call Switch Co., New York, N. Y.—Operating model of the Call switch. Represented by Ira A. Call, Harry A. Pike, R. V. Call and J. J. Lytton.  
Carbic Mfg. Co., Duluth, Minn.—Portable carbic lights, carbic cakes. Represented by G. B. Van Buren and S. K. Ferris.  
The Carborundum Co., Niagara Falls, N. Y.—Track grinder. Represented by H. P. Frost.  
Carnegie Steel Co., Pittsburgh, Pa.—“Braddock” insulated rail joint. Represented by Norman Hench.  
Chicago Malleable Castings Co., Chicago, Ill.—“Thomas” rail anchor tie plate. Represented by J. W. Thomas and Warren Osborn.  
The Creep Check Co., New York, N. Y.—“Creepcheck” anticreepers. Represented by C. H. Geuscher.  
Crerar, Adams & Co., Chicago, Ill.—Track and bonding drills, track jacks, “Emerson” rail benders, die starters. Represented by Russell Wallace and W. I. Clock.  
Dressel Railway Lamp Works, New York, N. Y.—“Dressel” railway lamps. Represented by F. W. Dressel, Robt. Black and F. W. Edmonds.  
The Duff Mfg. Co., Pittsburgh, Pa.—Track jacks. Represented by C. E. Hale, C. A. Methfessel and E. A. Johnson.  
Empire Railway Appliance Corporation, New York, N. Y.—Combined rail anchor and tie plate. Represented by D. L. Braine.  
Engineering News, New York, N. Y.—Represented by Elmer E. Smith, W. Buxman, W. G. Conley, H. K. Hottenstein, L. E. Ives and J. E. Sample.  
Equipment Improvement Co., New York, N. Y.—“Davis” adjustable track gage. Represented by C. W. Cross.  
Fairbanks, Morse & Co., Chicago, Ill.—Represented by A. A. Taylor, F. M. Condit, J. L. Jones, G. Howard and C. T. Fugitt.  
The Frictionless Rail, Boston, Mass.—Frictionless rail. Represented by F. A. Barbey, J. W. McManama and T. F. Dwyer, Jr.  
Hatfield Rail Joint Mfg. Co., Macon, Ga.—“Hatfield” rail joint. Represented by U. R. Hatfield.  
Hauck Manufacturing Co., Brooklyn, N. Y.—Portable oil burners and torches, thawing outfit. Represented by G. A. Nelson.  
Hayes Track Appliance Co., Richmond, Ind.—“Hayes” derails. Represented by E. L. Ruby.  
Robt. W. Hunt & Co., Chicago, Ill.—Samples of special inspection sheets and photographs. Represented by C. W. Geniet, Jr.  
Hyatt Roller Bearing Co., Newark, N. J.—“Hyatt” roller bearings for motor cars. Represented by C. M. Day, Walter R. Bylund, R. A. Holme, Geo. J. Helmstaedter, J. M. Mooney and C. A. Sloan.

Indianapolis Switch & Frog Co., Springfield, Ohio.—“R-N-R” solid manganese frog. Represented by J. A. Foulks.

Ingersoll-Rand Co., New York, N. Y.—“Imperial” tamping outfit, transparent photographs of “Imperial” pneumatic tampers at work. Represented by W. H. Armstrong, Chas. Dougherty and D. H. Seeley.

Interlocking Rail Joint Co., New York, N. Y.—Interlocking rail joint. Represented by E. W. Coughlin.

The O. F. Jordan Co., East Chicago.—The “Jordan” spreader, ballast shaper, bank builder and snow plow. Represented by J. P. McNally.

Keystone Grinder & Mfg. Co., Pittsburgh, Pa.—“Keystone” portable tool grinder. Represented by John S. Wincrantz.

Lackawanna Steel Co., Buffalo, N. Y.—Joint plates, tie plates, improved angle bars. Represented by A. H. Weston.

John Lundie, New York, N. Y.—The “Lundie” tie plate. Represented by Wallace Bigelow.

The Madden Co., Chicago, Ill.—“Richter” blue flag derail, “Blair” tie spacer, “Wagner” switch point straightener. Represented by T. D. Crowley.

The Alexander Milburn Co., Baltimore, Md.—“Milburn” portable lights, oxy-acetylene cutting apparatus, and track-walkers’ hand lamp. Represented by C. L. Pollard.

W. M. Mitchell Co., Louisville, Ky.—“Mitchell” rail anchor, “Betts” safety guard rail. Represented by L. C. Ryan.

Mudge & Co., Chicago, Ill.—Motor car literature. Represented by C. W. Cross.

National Lock Washer Co., Newark, N. J.—“Hipower” nut locks. Represented by F. B. Archibald, R. F. Horsey and J. H. Horn.

The National Malleable Castings Co., Cleveland, Ohio.—Rail anchors, malleable rail braces, malleable tie plates. Represented by J. J. Byers.

F. & M. Co., Chicago, Ill.—“Vaughan” rail anchor, “P. & M.” rail anchor. Represented by Fred A. Preston.

Pocket List of Railroad Officials, New York, N. Y.—Copies of pocket list. Represented by J. Alexander Brown and Harold A. Brown.

Positive Rail Anchor Co., Marion, Ind.—“Positive” rail anchor, guard rail brace. Represented by Frank M. Robbins.

Q & C Co., New York, N. Y.—“Bonzano” rail joint, rolled steel step joints, adjustable derails, guard rail clamps, “Fewing’s” car retracker, magnetic wig-wag, “Whitman” adjustable rail brace. Represented by C. F. Quincy, E. R. Packer, W. W. Hoyt, J. L. Terry, E. M. Smith, L. T. Burwell, and Edmund Quincy.

The Rail Joint Co., New York, N. Y.—Rail joints. Represented by V. C. Armstrong.

Railroad Supply Co., Chicago, Ill.—Tie plates and derailer. Represented by H. M. Buck, G. W. Daves and A. H. Smith.

Railway Review, Chicago, Ill.—Copies of papers. Represented by A. E. Hooven, W. M. Camp and L. A. Collier.

Ramapo Iron Works, Hillburn, N. Y.—Guard rail clamp, slide plate, automatic switch stand. Represented by W. C. Kidd, Thomas Akers, Arthur Gemunder, Edward Banker, E. C. Bigelow and James B. Strong.

Reading Specialties Co., Reading, Pa.—Guard rail clamps, rail bender, semi-universal tie spacer, “Reading” rerailer and clamp, and “Reading” compromise joint. Represented by Leonard Schuetz.

Roller Lock Nut Co., Inc., New York, N. Y.—Lock nuts and literature. Represented by H. L. C. Wenk.

Sellers Mfg. Co., Chicago, Ill.—Tie plates. Represented by R. A. Van Houten and George M. Hogan.

The Seltite Co., New York, N. Y.—“Seltite” self-tightening washer. Represented by J. Morris Butler and Charles M. Young.

Silver Steel Tie Co., Salt Lake City, Utah.—“Silver” steel tie. Represented by Joseph A. Silver.

Simmons-Boardman Publishing Co., New York, N. Y.—Railway Maintenance Engineer, *Railway Age Gazette*. Represented by E. T. Howson, Henry Lee, C. R. Mills, J. H. Cross, J. G. Little, F. C. Koch and H. H. Beardsley.

Southern Railway Supply & Equipment Co., St. Louis, Mo.—“Saunders” car stopper. Represented by W. D. Achuff and Lawrence Boswell.

Templeton-Kenly & Co., Ltd., Chicago, Ill.—“Simplex” track, pole and emergency jacks. Represented by H. W. Fimmel and A. C. Mills.

Track Specialties Co., New York, N. Y.—“Trasco” guard rail clamp, “Superior” compromise joint, “Superior” derailleurs, “Superior” rail joint, “Superior” rail bender, “Trasco” guard rail brace, “Trasco” rail brace, “Trasco” tie plate, “Trasco” padded tie plate. Represented by W. B. Lee and J. A. Bodkin.

Union Switch & Signal Co., Swissvale, Pa.—“Keystone” insulated rail joint model 14. Represented by J. J. Cozzens and J. C. Donaldson.

Verona Tool Works, Pittsburgh, Pa.—Lining bars, track wrenches, picks and other tools. Represented by Henry Fischer.

Wm. Wharton, Jr., & Co., Easton, Pa.—Switch stands, insulated gage rods and switch rods. Represented by G. R. Lyman and Thomas O’Brien.

Wyoming Shovel Works, Wyoming, Pa.—Track shovels. Represented by H. T. Potter.

#### RAILWAY ADVISORY COMMITTEE MEETING

An all-day meeting of the Railway Executives Advisory Committee, representing over 85 per cent of the railways of the United States, was held at 91 Broadway, New York, on Wednesday of this week. The morning session was devoted to an informal discussion of the Adamson eight-hour law, recently passed by Congress at the urgent request of President Wilson, and the afternoon meeting was taken up with a consideration of the presentation of testimony before the Newlands Joint Committee of the Senate and the House, which has been appointed to consider the railroad question and which will hold its first public hearing on November 20. No definite conclusion was reached on any point, and it was decided to hold another conference in the near future.



# New Illinois Central Station at Chicago

Plans Submitted Provide for a Large Terminal at Twelfth Street Designed to Accommodate Other Roads

ON Wednesday, September 20, the Illinois Central submitted to the Chicago City Council the plans for a proposed passenger terminal to be located in Twelfth street near the site of the present passenger station of that road. The proposed station is not intended merely to replace the existing terminal, but is designed to provide adequate passenger terminal facilities for all the railroads now using the Grand Central, the La Salle and the Dearborn stations, or in other words, all of the roads entering the city except those now using the Chicago & North Western and the Union stations. The plans submitted conform to and are based on the project to widen Twelfth street and extend it east of Michigan avenue and to construct a lake shore park extending south from Grant park between the lake and the Illinois Central tracks, a project involving complex negotiations to which the railroad, the city of Chicago, the Chicago South Park Commission and the United States War Department are parties. The plans provide further that both the structural treatment and the location of the station will be such as to produce architectural harmony with the Field museum, a monumental structure now being built in Grant park to the east of the proposed station.

In offering terminal facilities to the other roads, the Illinois Central is giving new life to a movement by certain interests in the city to provide passenger terminals for all the railroads entering the city (except the North Western) on a location along the south side of Twelfth street. This agitation was especially active some years ago, but there has been little discussion of the subject since the railroads using the Union station obtained a franchise for a new terminal on substantially the old location. Another feature of the proposed terminal plan that is exciting particular notice in the city is an arrangement for the suburban trains which, because of the subway involved, implies the use of electric traction for the suburban traffic.

## THE OLD STATION

The new station will supplant the existing one which was built in 1893 with a frontage on Park Row, a short street extending east from Michigan avenue about a half block north of Twelfth street. Thus the station in its present position offers a definite obstacle to the extension of Twelfth street eastward beyond Michigan avenue. The station is served by a multiple-track main line extending to the south along the lake front and by an east and west line known as the St. Charles air line which branches off just north of Sixteenth street and serves as a transfer connection and an outlet to the Illinois Central's Omaha line. Although Chicago is a terminal for all trains entering the station, the latter is of the through type. The building stands over the tracks which pass through it at the street level. This arrangement was followed to permit the suburban trains to continue north to the stations at Van Buren and Randolph streets, located conveniently to the business center of the city. Several freight tracks also extend north of Twelfth street to provide access to an extensive local freight terminal in the vicinity of the Chicago river. These suburban and freight tracks occupy a depressed right of way in Grant park, parallel and some 200 ft. east of Michigan avenue.

Studies for a new station were governed by a number of definite conditions, chief among which was the fixing of a location on the south side of the new widened Twelfth street, the elimination of any grade crossings of tracks with this

street, the continued operation of the suburban and freight service north of Twelfth street and provision for ample terminal track space to provide adequately for the trains of all roads that might possibly use the station. The proposed plans contemplate a maximum development of 48 station tracks on two levels, one above the street and the other below, the lower level to include the suburban tracks which would pass under Twelfth street to reach the stations to the north. It is intended actually to build only such portions of this complete layout as will be necessary to serve the roads which finally agree to enter into the project.

In considering the design of a passenger terminal to accommodate all the roads entering stations east of the Chicago river, a study was made of the Chicago terminal situation, to ascertain what connections and routings would be required for the various roads to reach the station and it was found that this could be arranged without much difficulty and that a material reduction in the lengths of the routes would be obtained in most cases. The most important new connecting line called for by this plan would be a line extending west from the Illinois Central tracks in the vicinity of Eighteenth street to secure a connection with the tracks of the Rock Island, the New York Central, the Western Indiana. The existing St. Charles air line cannot readily serve this purpose because it is located too far north to afford an entrance to the train shed without requiring reverse movements.

## THE PROPOSED STATION

The new station will have a beautiful setting, located on the south side of the widened Twelfth street which will have a total width of 120 ft. between property lines. It will face north overlooking Grant park and Michigan boulevard, while to the east it will command the lake shore, the new park, and the Field museum.

To provide adequate headroom for the tracks which must pass underneath the street, Twelfth street will rise in approaching the station from Michigan avenue to a sufficient elevation to bring it to the same grade as the upper level station tracks. As a result an exceedingly simple station layout is possible in so far as it concerns the through passenger trains. The plan resolves itself into a spacious central waiting room, located between the street and a concourse serving the ends of the station tracks and platforms. Auxiliary facilities will surround the waiting room and all functions of the terminal with which the passenger must deal in passing from the street to the trains or vice versa are located on a single level. A large space for carriages and automobiles is provided at the east end of the station building, while directly over it on a second or mezzanine floor a spacious gallery almost entirely enclosed in glass will afford a most unusual opportunity for a view of the lake and the park.

The baggage, express and mail facilities will be provided below the waiting room and track level at about the present grade of the streets. Direct communication with this level will be obtained by vehicles on Indiana avenue which will be extended north from its present terminus, parallel to the railroad to a junction with Twelfth street. Should it be found necessary to provide passenger tracks on both a lower and an upper level, this baggage and express space will serve both levels and communication will be provided by baggage-truck elevators at suitable intervals.

The extension of Indiana avenue suggests provision for direct street car communication with the station and the plans

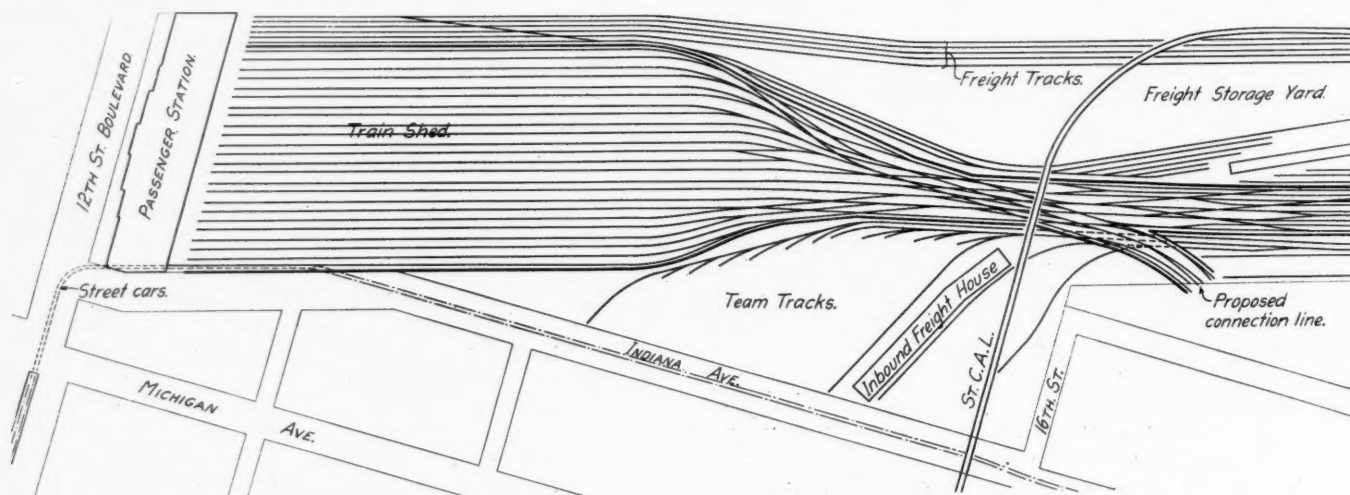
provide for a car line north on Indiana avenue to Twelfth street and west on Twelfth to a connection with the existing street car line on Wabash avenue. For the purpose of avoiding congestion with the traffic on Michigan avenue and to facilitate the loading and unloading of street car passengers at the station, it is proposed to run the street cars into the station building on the east side of Indiana avenue just south of Twelfth street where a street car station is to be provided. North from this point the cars are to pass into a subway under Twelfth street to the west line of Michigan avenue, then over an incline cars return to the surface at Wabash avenue.

The street car station in the building will be arranged to provide direct communication with either the suburban or

#### THE TRACK ARRANGEMENT

The accompanying drawings show a tentative plan for the arrangement of the tracks as required for the new project and which involves a complete reconstruction of the present layout for a long distance south of the station. The plan contemplates a complete coach and passenger engine terminal in addition to a freight storage yard and a local freight house and team tracks, adjacent to Indiana avenue, near Sixteenth street.

In the immediate vicinity of the station the tracks are on three distinct levels, the freight tracks and freight yards along the east side and the freight house and team tracks along the west side are to be located approximately at the present level.

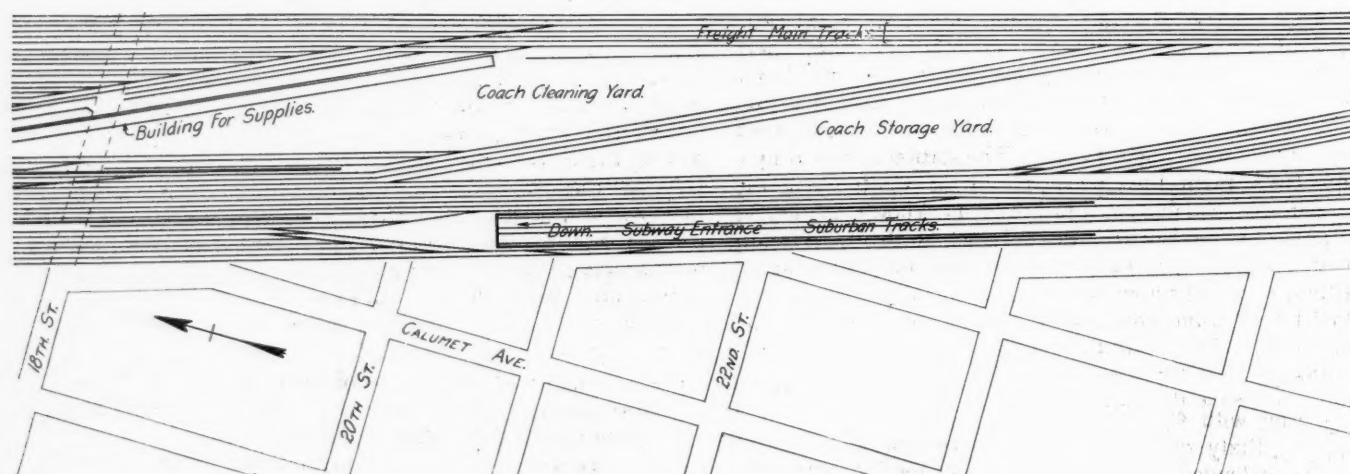


Proposed Layout of Passenger Station Tracks

the through train levels. The suburban trains will pass through the station on tracks occupying a third or lower level which will be depressed a sufficient amount to provide adequate clearance underneath the baggage room or street level. The suburban station facilities are to be located at the street level on the west side of the building immediately adjacent to the street car station. These facilities will include a separate waiting room with its ticket offices, toilet facilities, etc., and with stairways leading up to Twelfth street and to the

The passenger track which occupies the center of the layout will be on an upper level and the suburban tracks on a lower level. This arrangement necessitates a system of ramps commencing a considerable distance south of the station. The suburban tracks will enter a subway near Twentieth street and being under cover for a distance of nearly a mile will necessitate the abandoning of steam operation in so far as it concerns the suburban trains.

The station tracks for the through trains will occupy a



Proposed Layout of Station Approach Tracks

main waiting room level and down to the suburban track level. The principal means of communication with the street, however, will be a subway crossing underneath Twelfth street to an open depressed passage way just north of the street which will provide a direct connection with Michigan avenue. Four suburban tracks will be provided, two for express and two for local trains which will be arranged on opposite sides of north-bound and south-bound platforms.

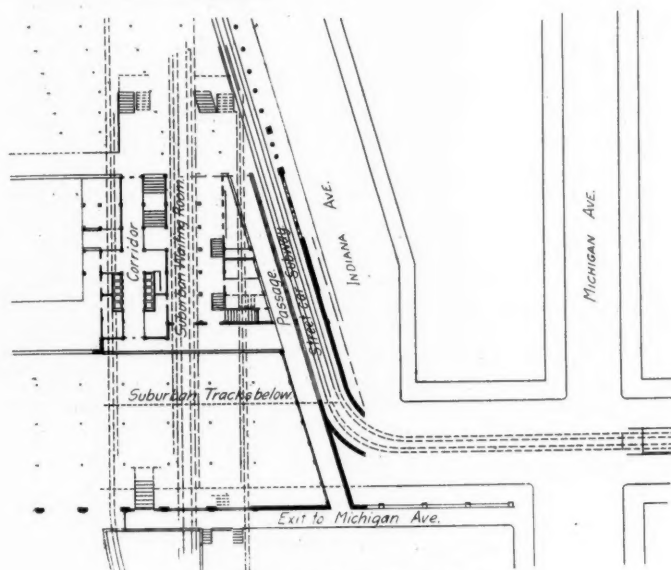
train shed about 1,500 ft. long and are arranged for separate baggage and passenger platforms. A system of crossovers in the vicinity of Sixteenth street will provide for the connection with the proposed line running west along Eighteenth street, while the St. Charles air line will make a connection with the freight tracks on a curve toward the south in place of the curve toward the north as at present.

The demands of the public for communication with the



proposed lake front park at frequent intervals south of Twelfth street, introduces the problem of street crossings over or under tracks. It is proposed to provide a subway at Eighteenth street and a viaduct at Thirty-first street, from which point south viaducts may be provided wherever deemed necessary.

The Illinois Central owns the property facing on Twelfth



Arrangement of Suburban Facilities

street between Michigan avenue and the proposed extension of Indiana avenue. This is to be utilized to add a distinct feature to the plan in the form of a large hotel, which will be given an exterior design to harmonize with that of the station building. The plan also calls for a bridge over Indiana avenue which will provide direct connection between the passenger station and the hotel at several floor levels.

### NATIONAL SAFETY COUNCIL; ANNUAL MEETING

The National Safety Council will hold its fifth annual safety congress at Detroit, Mich., October 17, 18, 19, 20. Headquarters will be at Hotel Statler. The steam railroad section will have meetings on Wednesday and Thursday, both morning and afternoon.

The chairman of the steam railroad section is M. A. Dow (N. Y. C.). The principal speakers at the railroad meetings will be R. C. Richards (C. & N. W.), G. L. Wright (C., St. P., M. & O.), A. A. Krause (M. K. & T.), J. S. Rockwell (B. R. & P.), E. R. Scoville (B. & O.), J. M. Guild (U. P.), Chas. T. Banks (Erie), B. C. Winston (Wabash), F. M. Metcalf (N. P.), W. C. Wilson (D. L. & W.), and G. S. Locker (D. & I. R.).

The National Safety Council is an employers' organization. It was started a little less than three years ago for the purpose of establishing a clearing house of information on accident prevention, sanitation, health conservation, etc. Starting with 40 members, the council now has more than 2,200. Sixty railroad companies are now represented in it. It has extended its influence to many foreign countries. The unique feature of the Council's service is five bulletins a week to each member, transmitting to the employer the very best means and methods of reducing accidents. In the meetings at Detroit there will be altogether 140 speakers. There will be an extensive safety exhibit, where the latest types of safety devices will be shown. Mr. Dow, chairman of the railroad section, is also director of exhibits for all the sections, and is a member of the executive committee of the Council.

### SANTA FE TO TEST EIGHT-HOUR LAW IN COURTS

In an open letter to the public and to the employees of his road, E. P. Ripley, president of the Atchison, Topeka & Santa Fe, announces that his company will not comply with the provisions of the Adamson act, "except as and when ordered to do so by the court of last resort." The text of the letter is as follows:

"To Santa Fe Employees and the Public:

"This is the position of the Atchison, Topeka & Santa Fe Railway Company regarding the controversy with its train-service employees over their demand for increased compensation. Congress, hastily acting under a threat of four leaders of labor organizations, enacted a so-called eight-hour law which is nothing more nor less than an advance of 20 to 25 per cent in the wages of the best paid men in railway service.

"It is only fair to our employees and the public to say that the Atchison, Topeka & Santa Fe Railway Company does not intend to comply with the law except as and when ordered to do so by the court of last resort.

"The merits of the case have been fully explained in the last few months and need no further mention.

"Should the courts finally decide that the increase must be paid, there will be an immediate demand from the remaining classes of labor, resulting in entire inability to pay without heavy increases in rates to be paid by the public—especially the farming class.

"IS THE PUBLIC PREPARED TO MEET THE DEMAND?"

"This notice is for the information of all concerned."

### W. S. STONE ON THE "BASIC EIGHT-HOUR LAW"

Warren S. Stone, grand chief of the Brotherhood of Locomotive Engineers, on September 11 addressed the following "confidential" letter to members of that organization:

"The final report on the co-operative wage movement has been mailed to all the divisions and chairmen. We ask a careful reading of same.

"In addition to this you will receive, in the near future, a printed report of the public hearing before the Senate committee on the eight-hour bill. We have also arranged for a reprint from the Congressional Record of September 1 and 2 of all the speeches made in both the House and Senate by our friends and enemies, for and against the enactment of the law. We do this, not in the interest of any political party, but in order that you may have the true facts in the case. We believe the time has arrived when labor should know who is friendly to its interest, and who is not. Important legislation will take place at the next session of Congress. It is important to you that men be elected who are friendly to YOU.

"Regarding the passage of the law, never before in the world's history have any working men, or union of labor, placed on the statutes of any country a law giving to the toilers a basic eight-hour day. It stands without a parallel.

"Regarding its application, you will read in a subsidized press that the act is illegal. Don't believe it. Many of the best constitutional lawyers in both the House and Senate have given their opinion that it is legal.

"We would advise all general chairmen and committees to wait a while before taking up the question of its application to their present schedule. Time works wonders. Give the other side a chance to cool off, and their ragged nerves a chance to heal before taking up the question.

"The events of the last month should make clear to you, if not fully understood before, the importance of having in the organization every man who is eligible to membership. This is a splendid time to do some missionary work. Are you willing to do your share?"

# General News Department

In the United States District Court at Lynchburg, Va., September 13, the Chesapeake & Ohio was fined \$1,500 for violations of the hours of service law. The violations were in connection with train movements on the James River division.

The exhibit of historical locomotives and cars and safety appliances of the Baltimore & Ohio, which has been shown in international and industrial expositions in various sections of the country, is to be displayed at Detroit on the occasion of the Safety Congress during the week of October 16.

The Chicago, Milwaukee & St. Paul has obtained a delay of 90 days in the action of the city council of St. Paul, Minn., on a proposed ordinance barring steam locomotives from the St. Paul "Short Line." The "Short Line" extends through a residence district of St. Paul and thence to Minneapolis.

An automobile which arrived in New York City from San Francisco September 19 is reported as having made the trip across the continent in five days, three hours, 31 minutes. The car was a "Hudson," and was driven by A. H. Patterson and others. The time is calculated as 14 hours 59 minutes better than the best previous record.

The Baltimore & Ohio has started an anti-spitting campaign, and on a designated day each month (the 15th) will distribute through the coaches of its trains a small card on which attention is directed to the danger of spreading disease. Public health authorities in the states through which the road runs have lent their approval to the campaign.

The Louisiana State Board of Health has put into service a laboratory railroad car, fully equipped for the investigation of diseases traced to the water supply. The car includes a laboratory for chemical and bacteriological work, a power plant, a dark room for photographic work, a toilet room, berths, lockers, an office, and a "garage" at one end for a small automobile.

The "Safety First" car, which has been fitted up by the Baltimore & Ohio, began its tour of the state of Ohio on Monday last. Victor T. Noonan, director of safety of the Ohio Industrial Commission, and several officers of the railroad, took part in the exercises preceding the departure of the car. The trip is to consume about two months. The car will be placed in proximity to the manufacturing plants where it stops, and every-

thing will be readily accessible to the workmen, who will not be required to lose time in order to go through the exhibits.

In the United States Court at Martinsburg, W. Va., September 17, Charles Harrison confessed to robbery of an express car on a train of the Baltimore & Ohio, near Central Station, W. Va., in October last, and was sentenced to twelve years' imprisonment. The reports say that another robber is to be tried, and that a third is still at large. In this robbery unsigned bank notes to the amount of \$100,000 were stolen.

An innovation has been adopted by the commissary department of the Chicago, Burlington & Quincy, which is installing soda fountains on some of its popular passenger trains. The first of the fountains to be put into use are in the lounging cars now in regular service on the Minnesota Limited, which leaves Chicago daily at 6:30 p. m. for St. Paul and Minneapolis, and its companion eastbound train. The soda fountain service will be a continuous feature on these two trains and the menu in accordance with the season—cold drinks in hot weather and hot drinks in cold weather.

The shopmen of 19 railroads west of Chicago have received through the committees of their unions the terms upon which the railroads will meet their demands for an increase in wages and a shorter working day. The unions ask for an eight-hour day and an increase of five cents an hour in wages, whereas the railroads, which are dealing with the men individually, are offering an advance of from one to two cents an hour and an eight-hour day for the back shops. A vote is being taken by the unions on the proposition offered by the roads. The vote will not be a strike vote, but merely an expression of sentiment preliminary to a renewal of negotiations with the railroads on or about October 1.

## Railway Earnings and Expenses for 1916

The Interstate Commerce Commission has issued its preliminary summary, subject to revision, of the monthly reports of roads having operating revenues above \$1,000,000 for the fiscal year ending June 30, 1916. The table, giving comparisons with 1915 for the per mile figures, is as follows:

	REVENUES AND EXPENSES OF CLASS I ROADS FOR 1916											
	UNITED STATES			EASTERN DISTRICT			SOUTHERN DISTRICT			WESTERN DISTRICT		
	Amount 1916	Per Mile 1916	Per Mile 1915	Amount 1916	Per Mile 1916	Per Mile 1915	Amount 1916	Per Mile 1916	Per Mile 1915	Amount 1916	Per Mile 1916	Per Mile 1915
Avg. number of miles operated..	229,229.09	.....	.....	58,963.34	.....	.....	42,298.42	.....	.....	127,967.33	.....	.....
Revenues:	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Freight .....	2,409,393,699	10,517	8,720	1,095,212,344	18,574	14,912	364,286,202	8,612	7,250	949,895,153	7,423	6,335
Passenger .....	673,472,119	2,938	2,765	296,368,985	4,026	4,704	90,888,840	2,149	2,034	286,214,294	2,236	2,108
Mail .....	60,057,967	262	250	22,307,082	378	352	7,635,992	180	179	30,114,893	235	226
Express .....	81,014,684	353	303	37,800,328	641	525	11,932,516	282	245	31,281,840	244	219
All other transportation.....	97,380,150	425	368	55,131,315	935	791	7,338,895	174	156	34,909,940	273	242
Incidental .....	73,263,346	319	262	39,446,818	669	519	8,482,950	200	174	25,333,548	198	173
Joint facility—Cr. ....	3,599,323	16	15	1,683,186	29	27	874,809	21	17	1,041,329	8	9
Joint facility—Dr. ....	1,373,054	6	5	776,013	13	13	285,314	7	4	311,727	2	2
Railway operating revenues.....	3,396,808,234	14,818	12,678	1,547,174,074	26,239	21,817	491,154,890	11,611	10,051	1,358,479,270	10,615	9,310
Expenses:												
Maint. of way and structures..	405,389,892	1,768	1,603	169,457,277	2,874	2,621	60,468,583	1,430	1,389	175,464,032	1,371	1,202
Maintenance of equipment....	558,777,771	2,438	2,189	266,676,512	4,523	4,010	90,931,616	2,150	1,918	201,169,643	1,572	1,434
Traffic .....	60,604,496	264	261	22,675,779	384	383	11,205,518	265	260	26,723,199	209	204
Transportation .....	1,096,632,406	4,784	4,464	526,768,850	8,934	8,060	148,831,589	3,518	3,472	421,031,967	3,290	3,126
Miscellaneous operations .....	25,712,804	112	102	11,683,819	198	180	2,415,766	57	52	11,613,219	91	82
General .....	79,392,991	346	327	34,601,888	587	542	12,626,114	298	283	32,164,989	251	242
Transport'n for investm't—Cr.	6,506,127	28	31	751,371	13	13	1,146,858	27	33	4,607,898	36	38
Railway operating expenses.....	2,220,004,233	9,684	8,915	1,031,112,754	17,487	15,783	325,332,328	7,691	7,341	863,559,151	6,748	6,252
Net rev. from railway operations..	1,176,804,001	5,134	3,763	516,061,320	8,752	6,034	165,822,562	3,920	2,710	494,920,119	3,867	3,058
Railway tax accruals.....	146,754,477	640	591	58,657,157	995	942	20,621,130	488	440	67,476,190	527	478
Uncollectible railway revenues..	807,720	4	3	262,923	4	3	187,392	4	3	357,405	3	3
Railway operating income.....	1,029,241,804	4,490	3,169	457,141,240	7,753	5,089	145,014,040	3,428	2,267	427,086,524	3,337	2,577



## Revenues and Expenses of Express Companies for May, 1916

The following statement, which is subject to revision, has been compiled by the Interstate Commerce Commission from the monthly reports of operating revenues and operating expenses of the principal express companies for May, 1916 (the express companies have three months in which to report):

changes and improvements to the pier on which the convention is held each year. This year the entire sum received from the association, amounting to \$3,100, can be paid to the exhibitors. There has been added to this the sum of \$1,400, being the surplus as the result of the economical management of the association during the year, which makes a total of \$4,500.

A—FOR THE MONTH OF MAY									
Item	Adams Express Co.		American Express Co.		Canadian Express Co.		Globe Express Co.*		Great Northern Express Co.
	1916	1915	1916	1915	1916	1915	1916	1915	1916 1915
Mileage of all lines covered (miles)	44,973.36	44,936.22	76,988.67	73,909.69	10,238.13	9,676.50	.....	.....	9,582.80 9,557.73
Charges for transportation.....	\$3,962,510	\$3,092,137	\$5,467,570	\$4,274,145	\$376,244	\$273,231	\$6	\$3,299	\$293,495 \$263,126
Express privileges—Dr.....	1,932,839	1,462,863	2,753,701	2,149,067	179,802	127,628	...	3,784	178,982 159,676
Operations other than transp.....	57,210	46,165	246,024	244,000	21,775	5,125	...	49	5,507 4,859
Total operating revenues.....	2,086,880	1,675,439	2,959,894	2,369,078	218,214	150,733	6	‡ 435	120,020 108,309
Operating expenses.....	1,845,017	1,463,598	2,641,482	2,039,133	167,624	127,533	86	5,809	91,678 86,132
Net operating revenue.....	241,869	211,840	318,411	329,945	50,590	23,109	† 80	† 6,245	28,342 22,175
Uncollectible revenue from transp..	443	687	1,230	413	43	6	...	...	3 15
Express taxes.....	22,550	13,733	60,567	49,480	4,200	4,000	...	250	3,588 3,443
Operating income.....	218,859	197,419	256,624	280,051	46,347	19,193	† 80	† 6,495	24,749 18,717

B—FOR THE ELEVEN MONTHS ENDING WITH MAY									
Item	Adams Express Co.		American Express Co.		Canadian Express Co.		Globe Express Co.*		Great Northern Express Co.
	1916	1915	1916	1915	1916	1915	1916	1915	1916 1915
Mileage of all lines covered (miles)	8,233.03	8,118.34	34,821.60	34,679.60	109,324.31	114,923.23	5,232.87	5,174.26	296,394.77 300,975.57
Charges for transportation.....	\$263,484	\$231,878	\$1,460,245	\$1,273,385	\$4,216,801	\$3,476,102	\$126,580	\$109,664	\$16,166,940 \$12,996,966
Express privileges—Dr.....	141,493	126,601	759,361	664,328	2,159,329	1,778,131	61,338	49,466	8,165,850 6,521,543
Operations other than transp.....	4,196	3,505	32,958	25,130	95,554	68,692	3,924	3,259	467,150 400,789
Total operating revenues.....	126,187	108,778	733,842	634,187	2,153,026	1,766,663	69,166	63,457	8,467,240 6,876,212
Operating expenses.....	96,874	85,356	574,565	526,435	1,587,024	1,501,777	61,562	52,131	7,267,940 5,887,909
Net operating revenue.....	29,312	23,421	159,277	107,761	365,977	264,885	5,604	11,325	1,109,300 988,303
Uncollectible revenue from transp..	48	44	92	66	1,228	559	4	10	3,093 1,804
Express taxes.....	5,000	5,000	15,456	14,147	34,149	31,563	1,211	925	146,713 122,544
Operating income.....	24,264	18,377	143,729	93,537	330,600	232,762	4,389	10,390	1,049,494 863,955

C—FOR THE ELEVEN MONTHS ENDING WITH MAY									
Item	Adams Express Co.		American Express Co.		Canadian Express Co.		Globe Express Co.*		Great Northern Express Co.
	1916	1915	1916	1915	1916	1915	1916	1915	1916 1915
Charges for transportation.....	\$38,520,475	\$31,443,347	\$52,238,900	\$42,472,971	\$3,540,349	\$2,844,241	\$1,367	\$596,398	\$3,079,990 \$2,839,093
Express privileges—Dr.....	18,933,896	15,670,229	26,198,341	21,327,319	1,813,164	1,417,936	447	301,142	1,878,430 1,731,170
Operations other than transp.....	530,272	459,002	2,867,924	2,088,674	85,623	55,119	10	8,102	53,569 47,848
Total operating revenues.....	20,116,851	16,232,120	28,908,573	23,234,326	1,820,809	1,481,424	931	303,359	1,255,129 1,155,772
Operating expenses.....	17,958,775	16,558,991	25,348,953	22,539,592	1,531,096	1,411,289	6,101	296,558	969,522 972,476
Net operating revenue.....	2,158,076	† 326,870	3,559,619	694,733	289,712	70,135	† 5,170	6,800	285,607 183,295
Uncollectible revenue from transp..	6,187	5,558	9,159	2,615	498	95	...	...	205 103
Express taxes.....	208,893	182,522	502,827	378,541	46,200	44,000	4,200	10,850	41,027 41,446
Operating income.....	1,942,995	† 514,952	3,047,692	813,576	243,013	26,040	† 9,370	† 4,049	244,374 141,745

D—FOR THE ELEVEN MONTHS ENDING WITH MAY									
Item	Adams Express Co.		American Express Co.		Canadian Express Co.		Globe Express Co.*		Great Northern Express Co.
	1916	1915	1916	1915	1916	1915	1916	1915	1916 1915
Charges for transportation.....	\$2,758,767	\$2,493,745	\$15,143,364	\$12,964,423	\$41,374,293	\$34,966,740	\$1,290,187	\$1,063,588	\$157,955,886 \$131,684,551
Express privileges—Dr.....	1,497,055	1,362,709	7,791,913	6,701,404	21,337,970	17,891,945	619,923	546,681	80,071,142 66,950,540
Operations other than transp.....	43,104	36,381	322,654	277,985	1,037,272	660,966	40,385	34,071	4,980,768 3,668,152
Total operating revenues.....	1,304,816	1,167,417	7,674,106	6,541,004	21,073,644	17,735,760	710,649	550,977	82,865,512 68,402,163
Operating expenses.....	982,209	970,297	6,068,224	5,787,900	18,022,952	16,304,982	605,400	569,968	71,493,327 65,412,057
Net operating revenue.....	322,516	197,110	1,605,881	753,103	3,050,691	1,430,778	105,248	† 18,991	11,372,185 2,990,106
Uncollectible revenue from transp..	716	195	1,035	194	12,259	9,557	71	102	30,133 18,822
Express taxes.....	55,000	55,000	158,528	160,035	366,153	382,579	12,769	10,911	1,395,630 1,265,688
Operating income.....	266,800	141,924	1,446,318	592,473	2,572,248	1,038,642	92,407	† 30,004	9,946,422 1,705,396

\* Discontinued operations on April 30, 1915. † Deficit or loss. ‡ Debit item.

## Collision at Grandville, Mich.

The collision at Grandville, Mich., July 15, reported in the *Railway Age Gazette* September 1, page 369, should not have been included in the table of train accidents. It belongs in the class usually noticed at the end of the monthly accident notes—"Electric Car Accidents." The steam locomotive was on a track leading to an industry, and at the crossing was struck by the electric car, the car having run past a signal set against it.

## Railway Supply Manufacturers' Association

Announcement has been made by President Oscar F. Ostby, of the Railway Supply Manufacturers' Association, which had charge of the annual convention of the Master Car Builders' and American Railway Master Mechanics' associations held in Atlantic City, N. J., in June, that the exhibitors will this year receive rebates of the rental for space amounting to six cents a square foot, which means a total of \$4,500. The money for this refund has been derived from two sources. The Hotel Men's Association of Atlantic City has always contributed 10 per cent of the receipts of the hotels from the convention crowd toward the expenses of the exhibitors in making the necessary

## Traveling Engineers' Association

The twenty-fourth annual convention of the Traveling Engineers' Association will be held at the Hotel Sherman, Chicago, Ill., October 24 to October 27, inclusive. The convention was to have been held on September 5, and was postponed on account of the then impending railroad strike.

## MEETINGS AND CONVENTIONS

The following list gives names of secretaries, dates of next or regular meetings and places of meeting of those associations which will meet during the next three months. The full list of meetings and conventions is published only in the first issue of the *Railway Age Gazette* for each month.

- AMERICAN ASSOCIATION OF DINING CAR SUPERINTENDENTS.—H. C. Boardman, D. L. & W., Hoboken, N. J. Annual convention, October 19-21, New Orleans, La.
- AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York. Annual meeting, October 17, 18, Washington, D. C.
- AMERICAN ELECTRIC RAILWAY ASSOCIATION.—E. B. Buttrick, 8 W. 40th St., New York. Annual convention, October 9-13, Atlantic City, N. J.
- AMERICAN ELECTRIC RAILWAY MANUFACTURERS' ASSOCIATION.—H. G. McConaughy, 165 Broadway, New York. Annual convention, October 9-13, Atlantic City, N. J.
- AMERICAN RAILWAY ASSOCIATION.—J. E. Fairbanks, general secretary, 75 Church St., New York. Next meeting, November 15, 1916, Denver, Colo.

**AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.**—C. A. Lichty, C. & N. W., Chicago. Next convention, October 17-19, Gruenwald Hotel, New Orleans, La.

**AMERICAN SOCIETY OF CIVIL ENGINEERS.**—Chas. Warren Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except July and August; 220 W. 57th St., New York.

**ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS.**—George W. Lyndon, 1214 McCormick Bldg., Chicago. Annual convention, October 10, 1916, Waldorf-Astoria, New York.

**ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.**—G. F. Conrad, 75 Church St., New York. Next meeting, December 12-13, 1916, Atlanta, Ga.

**BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.**—P. C. Jacobs, H. W. Johns-Manville Co., Chicago. Meetings with American Railway Bridge and Building Association.

**CANADIAN RAILWAY CLUB.**—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.

**CANADIAN SOCIETY OF CIVIL ENGINEERS.**—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.

**CAR FOREMEN'S ASSOCIATION OF CHICAGO.**—Aaron Kline, 841 Lawlor Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, Hotel La Salle, Chicago.

**CENTRAL RAILWAY CLUB.**—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual meeting, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.

**CINCINNATI RAILWAY CLUB.**—H. Boutet, Chief Interchange Inspector, Cin'ti Rys., 101 Carew Bldg., Cincinnati. Regular meetings, 2d Tuesday, February, May, September and November, Hotel Sinton, Cincinnati.

**ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.**—Elmer K. Hiles, 2511 Oliver Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh, Pa.

**GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.**—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month, Room 1856, Transportation Bldg., Chicago.

**MAINTENANCE OF WAY AND MASTER PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.**—F. W. Hager, Fort Worth & Denver City, Fort Worth, Tex. Next convention, October 17-19, Philadelphia, Pa.

**NEW ENGLAND RAILROAD CLUB.**—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meeting, 2d Tuesday in month, except June, July, August and September, Boston.

**NEW YORK RAILROAD CLUB.**—Harry D. Vought, 95 Liberty St., New York. Regular meeting, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.

**NIAGARA FRONTIER CAR MEN'S ASSOCIATION.**—E. N. Frankenberger, 623 Brisbane Bldg., Buffalo, N. Y. Meetings, 3d Wednesday in month, New York Telephone Bldg., Buffalo, N. Y.

**PEORIA ASSOCIATION OF RAILROAD OFFICERS.**—F. C. Stewart, 410 Masonic Temple Bldg., Peoria, Ill. Regular meetings, 3d Thursday in month, Jefferson Hotel, Peoria.

**RAILROAD CLUB OF KANSAS CITY.**—Claude Manlove, 1008 Walnut St., Kansas City, Mo. Regular meetings, 3d Saturday in month, Kansas City.

**RAILWAY CLUB OF PITTSBURGH.**—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August, Monongahela House, Pittsburgh.

**RAILWAY DEVELOPMENT ASSOCIATION.**—D. C. Welty, Commissioner of Agriculture, St. L., Iron Mt. & So., 1047 Railway Exchange Bldg., St. Louis. Next meeting, November 9-10, La Salle Hotel, Chicago.

**RAILWAY FIRE PROTECTION ASSOCIATION.**—C. B. Edwards, Fire Ins. Agt., Mobile & Ohio, Mobile, Ala. Annual meeting, October 3-5, Hotel Astor, New York.

**RAILWAY REAL ESTATE ASSOCIATION.**—Frank C. Irvine, 1125 Pennsylvania Station, Pittsburgh, Pa. Annual meeting, October 11-13, 1916, Chicago.

**RICHMOND RAILROAD CLUB.**—F. O. Robinson, C. & O., Richmond, Va. Regular meetings, 2d Monday in month, except June, July and August.

**ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.**—P. J. McAndrews, C. & N. W., Sterling, Ill. Next annual convention, September 19-22, 1916, Hotel McAlpin, New York.

**ST. LOUIS RAILWAY CLUB.**—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.

**SOCIETY OF RAILWAY FINANCIAL OFFICERS.**—L. W. Cox, 1217 Commercial Trust Bldg., Philadelphia, Pa. Annual meeting, October 18-20, Washington, D. C.

**SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.**—E. W. Sandwich, A. & W. P. R. R., Atlanta, Ga. Next meeting, October 19, 1916, Birmingham, Ala.

**SOUTHERN & SOUTHWESTERN RAILWAY CLUB.**—A. J. Merrill, Grand Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 A. M., Piedmont Hotel, Atlanta.

**TOLEDO TRANSPORTATION CLUB.**—Harry S. Fox, Toledo, Ohio. Regular meetings, 1st Saturday in month, Boody House, Toledo.

**TRACK SUPPLY ASSOCIATION.**—W. C. Kidd, Ramapo Iron Works, Hillburn, N. Y. Meetings with Roadmasters' and Maintenance of Way Association.

**TRAFFIC CLUB OF CHICAGO.**—W. H. Wharton, La Salle Hotel, Chicago.

**TRAFFIC CLUB OF NEW YORK.**—C. A. Swope, 291 Broadway, New York. Regular meetings, last Tuesday in month, except June, July and August, Waldorf-Astoria Hotel, New York.

**TRANSPORTATION CLUB OF DETROIT.**—W. R. Hurley, Superintendent's office, N. Y. C. R. R., Detroit, Mich. Meetings monthly, Normandie Hotel, Detroit.

**TRAVELING ENGINEERS' ASSOCIATION.**—W. O. Thompson, N. Y. C. R. R., Cleveland, Ohio. Annual convention, October 24-27, Hotel Sherman, Chicago.

**UTAH SOCIETY OF ENGINEERS.**—Frank W. Moore, 1111 Newhouse Bldg., Salt Lake City, Utah. Regular meetings, 3d Friday in month, except July and August, Salt Lake City.

**WESTERN ASSOCIATION OF SHORT LINE RAILROADS.**—Clarence M. Oddie, Mills Bldg., San Francisco. Annual meeting, November 15, Brown Palace Hotel, Denver, Colo.

**WESTERN CANADA RAILWAY CLUB.**—L. Kon, Immigration Agent, Grand Trunk Pacific, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.

**WESTERN RAILWAY CLUB.**—J. W. Taylor, 1112 Karpen Bldg., Chicago. Regular meetings, 3d Tuesday in month, except June, July and August, Grand Pacific Hotel, Chicago.

**WESTERN SOCIETY OF ENGINEERS.**—E. N. Layfield, 1735 Monadnock Block, Chicago. Regular meetings, 1st Monday in month, except January, July and August, Chicago. Extra meetings, except in July and August, generally on other Monday evenings. Annual meeting, 1st Wednesday after 1st Thursday in January, Chicago.

## Traffic News

The Traffic Club of Pittsburgh held its annual outing at Willows, near Oakmont, Pa., on September 11.

Luther M. Walter, of Chicago, gave an address before the Milwaukee Traffic Club on September 21 on the legal aspects of the Adamson eight-hour act.

The Economist (London) estimated, on August 1, that war had reduced the tonnage of the world's merchant ships available for ordinary commercial traffic by 12,451,000 tons; or from 25,609,000 tons to 13,158,000 tons.

The Jacksonville Traffic Bureau has been instrumental in getting the Florida Railroad Commission to greatly reduce the rates on Florida-grown corn to Jacksonville on the Atlantic Coast Line and the Seaboard Air Line.

The Interstate Commerce Commission has suspended until January 16, 1917, the effective date of increased rates on bituminous coal from Colorado to points in Kansas, Nebraska, Missouri and Iowa, provided for in tariffs filed by the Denver & Salt Lake.

More freight passed through the Panama Canal in July than in any month for a year. According to an official bulletin 76 vessels passed from the Atlantic to the Pacific; 83 in the reverse direction. They paid tolls of \$460,123. Of the number of ships using the canal in July, 27 were American, 75 British and 11 Japanese.

The New York & Cuba Mail Steamship Company will soon inaugurate direct freight and passenger service from New York to west coast ports of Central America, and to Salina Cruz, Mex., by way of the Panama Canal. The first vessel will sail on September 30 from New York, and there will be sailings every 21 days thereafter.

At the annual meeting of the General Agents' Association of Chicago the following officers were elected: Chairman, C. C. Clark, general agent, passenger department, Michigan Central; vice-chairman, A. J. Puhl, general agent, passenger department, Chicago, Burlington & Quincy; secretary, A. C. Odenbaugh, general agent, passenger department, Northern Pacific.

The passenger traffic officers of the Baltimore & Ohio will hold their annual staff meeting at Pittsburgh next Monday and Tuesday. The sessions will be presided over by A. W. Thompson, vice-president, who recently assumed the direction of that department, and about 200 passenger representatives of the company from points all over the United States will be present.

According to statistics compiled by the United States Geological Survey for 50 important coal-carrying railroads, 451,611 carloads of bituminous coal and 51,656 carloads of beehive coke were shipped during August, 1916. This is an increase in shipments of bituminous coal of 10 per cent over August, 1915, and 13 per cent over July, 1916. The corresponding increases in beehive coke shipments were 9.5 per cent and 9 per cent.

Representatives of the railroads of the country convened in New York City this week to confer on the preparation of briefs on the form of the uniform bill of lading provided for in recent federal legislation. Hearings on the bill-of-lading form were recently held in New York, Chicago, San Francisco, New Orleans and Atlanta. The briefs will be filed with the Interstate Commerce Commission on October 10, and oral arguments will be presented before the Commission on October 20.

According to Pittsburgh papers, manufacturers and shippers in that region already feel a serious freight car shortage. In the coal fields operators say that it is not possible to obtain much more than half the cars actually needed. The Connells-ville coke fields are being forced to curtail coke production as much because of the scarcity of cars as by lack of labor. The lake coal movement is an important factor in the situation. The movement for the Northwest is further behind this season than ever before, owing to long extended strikes of miners, scarcity of vessel capacity and dock labor strikes in the Northwest.



## Commission and Court News

### INTERSTATE COMMERCE COMMISSION

The commission has suspended from September 15 to January 13 tariffs providing for numerous increases in rates on smoking tobacco and other tobacco products from Virginia and North Carolina points to southeastern destinations.

The Interstate Commerce Commission has suspended until January 8, 1917, the effective date of the rule of the Western Trunk Line Committee, recently adopted, which was intended to cancel provisions for the free shipment of goods to replace freight lost or damaged in transit.

A number of coal companies in Ohio have filed a complaint with the Commission, protesting against a change in rates on coal from the southern Ohio coal district to Indiana and Michigan points, which they say will create an unreasonable preference in favor of West Virginia, Kentucky and Tennessee coal operators.

The Interstate Commerce Commission has suspended from September 15 to January 13 the operation of tariffs providing for the cancellation of express rates on fish from Selkirk, East Selkirk and other points in Manitoba, Canada, to Detroit, Buffalo and New York, and for the future application of class rates on such traffic.

Representatives of a large number of iron and steel companies appeared at a hearing before the suspension board of the Interstate Commerce Commission on September 18 to protest against the proposed cancellation of export rates on iron and steel articles, effective on October 1, which would leave in effect the higher domestic rates.

The Interstate Commerce Commission has suspended until November 16 its order in the St. Louis Business Men's League case establishing a passenger fare of 2.4 cents a mile between St. Louis, Mo., and Keokuk, Iowa, and Illinois points.

The Commission has set a hearing to be held at St. Louis October 2, on the questions concerning freight rates in the case of the Business Men's League of St. Louis. It will be before Examiner Gutheim. The League complains that St. Louis is discriminated against in favor of Illinois points, because the Illinois commission did not allow a five per cent increase on intrastate freight traffic when that increase went into effect on interstate business.

The Merchants' Exchange of St. Louis has filed a complaint with the Interstate Commerce Commission against the Great Lakes Transit Corporation and eastern rail lines, charging discrimination against St. Louis in new rates on grain products and by-products from Chicago to Buffalo by lake, and thence to eastern destinations by rail. It is stated that in establishing joint through rates from Chicago, Milwaukee, Duluth, Superior and Minneapolis the carriers have failed to establish joint through rates from St. Louis so that the only rail-lake-and-rail rates available to St. Louis shippers to certain destinations via the lines of the Great Lakes Transit Corporation are the rates published by that company from Chicago and the local rates from St. Louis, which make a combination higher than the rates formerly in effect from St. Louis.

The Boston Chamber of Commerce and a large number of New England commercial organizations have filed a complaint with the Interstate Commerce Commission against the principal rail and water carriers serving the southeastern states, protesting against a change in the relation of the rates from New England points, and through the ports of Boston and Providence via ocean and rail through the Virginia and South Atlantic ports to Georgia, Florida, Alabama, Mississippi, Louisiana, Tennessee and Kentucky, as compared with those from New York to the same destinations. It is alleged that prior to January 1, 1916, the same class and commodity rates were published from New York as from Boston and Providence, and that the rates from other New England points were higher by certain differ-

entials, but that on that date, in "purporting" to comply with fourth section orders of the commission, rates had been filed higher from Boston and Providence by 2, 3 and 4 cents per 100 lb. than from New York, thereby disturbing a relation on which business had been established and subjecting the complainants to an unreasonable discrimination. It is stated that the water carriers were responsible for the change, and that the rail lines were opposed to it.

The Louisiana Railroad Commission has filed with the Interstate Commerce Commission a petition charging the Texas Railroad Commission with interfering with the adjustment of rates sought to be brought about by the federal commission in its decision of July 7 in the Shreveport case. The petition states that the federal commission in its opinion had said that the carriers had filed a list of commodities on which they were willing to apply rates between Shreveport and Texas stations equivalent to the current Texas rates or those recently approved by the Texas commission; that the complainants had expressed themselves as satisfied with this plan, and that the commission therefore made no specific finding as to these rates. The petition then states that on August 28 the Texas commission had issued an order, effective on September 1, cancelling the rates then in effect, and which had been in effect at the time of the Interstate Commerce Commission's decision, and restoring rates which had been in effect prior to a recent 10 per cent advance. The petition alleges that the rates in effect on August 28 were reasonable, but that the old rates restored are unjustly discriminatory to Louisiana shippers, and will deprive them of a large part of the relief prayed for in the original petition in the case. The Interstate Commerce Commission is asked to issue a specific order as to the rates on the commodities involved, which include wool, cement, fertilizers, lime, salt, sugar, molasses, logs, packinghouse products and fresh meats, canned goods and others. The Commission has issued an order directing the Texas roads to show cause on October 7 why they should not put into effect the commodity rates in question—those which the Texas commission has cancelled. Carriers have secured an injunction in the Federal Court, restraining the Texas commission from enforcing its cancellation order.

### COURT NEWS

A suit against the Wabash to impose fines amounting to \$13,500 was recently filed in the United States District Court at Council Bluffs, Iowa. Twenty-seven violations of the hours of service law are charged, all dealing with trainmen's time, on runs between Council Bluffs, Iowa, and Stanberry, Mo.

#### Carmack Amendment—Foreign Carrier's Negligence

The South Carolina Supreme Court holds that the Carmack amendment does not make a domestic carrier liable for loss occasioned by the negligence of a foreign carrier or for transportation to foreign countries, but only as to commerce between the states and territories within the United States.—*Aldrich v. Atlantic Coast Line (S. Car.)*, 89 S. E., 315.

#### Rebate by Compromise of Claim

The Texas Court of Civil Appeals holds that an agreement of a railroad to pay a certain amount in compromise of an unliquidated claim for damages for alleged negligence, in consideration of the claimant making all his subsequent interstate shipments over the railroad's line, violates the law against rebating.—*St. Louis, Iron Mountain & Southern (Tex.)*, 187 S. W., 358.

#### Excursion Fares—Necessity for Tickets

In an action for unlawful ejectment it appeared that the plaintiff went to the defendant's station to purchase advertised round trip excursion tickets. After failing to obtain tickets before the train's arrival by reason of the ticket agent's absence, he tried to purchase tickets after the train blew the station signal, but was unable to do so on account of the crowd. After the conductor had failed to hold the train until he could purchase the tickets, he boarded it without a ticket. He demanded of the conductor that he be carried to and from the show at

excursion rates, and demanded a return ticket as a condition of paying his fare. The South Carolina Supreme Court holds that, in view of the law forbidding discrimination of rates, and his failure to pay the only rate the conductor was allowed to receive, he was not entitled to passage on the train, and could not recover for his ejection.—*Ashe v. Southern* (S. Car.), 89 S. E., 482.

#### Posting Tariffs at Stations

The South Carolina Supreme Court holds that, under section 6 of the Interstate Commerce Act, where a railroad filed proper schedules of rates with the secretary of the Interstate Commerce Commission, filed a copy of the schedules in its division freight office, and tacked a tin sign in a conspicuous place at stations, giving notice that freight schedules were on file in the division freight office, such schedules were legal though not posted in the office from which shipments were made.—*Southern v. Wilmont Oil Mills* (S. Car.), 89 S. E., 476.

#### Storage Charges on Structural Steel

The builder of a hotel arranged with the railroad to store the steel until used. The hotel company went into bankruptcy, and the receivers sold the steel. The railroad claimed storage charges, for which the receivers denied liability. The Delaware Court of Chancery held that to avoid liability the receivers were bound to show that by the hotel company's contract with the builder, the latter was ultimately liable for such charges, and in the absence of such evidence the inference arose that the owner was ultimately liable.—*In re Arlington Hotel Co.*, 98 Atl., 186.

#### Stopping Special Excursion Trains

The Mississippi Supreme Court, on suggestion of error, has reversed its opinion in 70 So. 898, in an action for damages for failure to stop an excursion train at a flag station. It holds that where it was the annual custom of a railroad company to run an excursion train, which always stopped on flag at a certain station to take on passengers, and no notice was given to the public that the custom would be changed, the plaintiff was invited and had a right to take passage, and when he was denied this right had a cause of action against the company.—*Gulf & Ship Island v. Dixon* (Miss.), 71 So., 906.

#### Yard Accident to Callboy

Action was brought for personal injuries to a railroad callboy 14 years old, employed in the defendant's yard, received by being struck by a train. The Texas Court of Civil Appeals held that, although a child of very tender years may be presumed as a matter of law not to have sufficient discretion to appreciate dangers obvious to one of maturer ages, no such presumption can be indulged in favor of a boy 14 years old. He knew and appreciated the danger of trains in the yard as well as anyone else. Therefore the company's failure to warn him did not constitute negligence. Nor was the company liable on the theory that it was negligent in employing so immature a person.—*Galveston, Houston & Henderson v. Anderson* (Tex.), 187 S. W., 491.

#### Separate Coach Law

In an action against a railroad company for damages for placing white passengers in a coach also occupied by negroes, on a train from Austin to San Antonio, it appeared that unusual flood conditions caused the want of proper equipment, and there was an unusually large crowd on the train. The Texas Court of Civil Appeals held that these were circumstances to be taken into consideration in determining whether the plaintiffs were humiliated or mortified, and, if so, in measuring the equivalent thereof in money. They could not recover even nominal damages against the railroad for infraction of the separate coach law without showing that they were injured. Evidence that the two races were commingled because the negro coach was disabled, that they were separated by large signs, one portion of the coach being set off for the negroes, and that many of the white passengers were soon placed in Pullman and chair cars, had such a bearing on the question as to whether white passengers suffered shame and humiliation that, if it was erroneously ad-

mitted, the error did not necessitate a reversal.—*Weller v. Missouri, K. & T.* (Tex.), 187 S. W., 374.

#### Exemption of Logging Cars Strictly Construed

In two suits against the Northwestern Pacific, the federal district court, northern district of California, Second division, decides against the road on its claim that large logging cars, which are substantially like standard freight cars, come within the exemption of the safety appliance acts, under which small logging cars are not subject to the requirements of the law. District Judge Van Fleet, in a lucid and forcible opinion, holds:

1. Eight-wheel standard logging cars, although used exclusively in the transportation of logs, are comprehended within the terms of the Federal safety appliance acts if the height of such cars from the top of rail to the center line of coupling exceeds 25 inches.

2. Liability of a common carrier for the penalty provided in such acts for "permitting" the use on its line of equipment not in conformity with the requirements thereof is not confined to equipment operated by employees of that carrier alone, but extends to that used by another carrier over the former's line pursuant to a contract authorizing the latter to use the tracks of the former.

3. The word "permitting" as used in the statute is not to be construed as implying knowledge of the thing permitted, and the duty of carriers to exclude from their lines the use of defective equipment is an absolute one.

#### Delivery to Consignee Named in Straight Bill of Lading

Action was brought against the Southern Pacific for the value of merchandise delivered to it by plaintiff for shipment from New York to Ft. Worth, on a straight bill of lading as follows: "M [M] C, care, Western National Bank, Ft. Worth, for A. J. Cohen, 601 May street, Tex." The goods were delivered to Cohen at Ft. Worth without production of the bill of lading. The plaintiff claimed a wrongful delivery. The Municipal Court of the City of New York held that the goods were properly delivered to Cohen, if he was the consignee mentioned in the bill of lading. "M [M] C" was a fictitious designation, and must be disregarded. It might be that delivery to the Western National Bank would have relieved the railroad from liability. But it did not follow that such delivery was the only good delivery. The plaintiff could have guarded himself against delivery before payment by using an order bill of lading, or notifying the carrier that the goods should not be delivered except on payment. Having failed to do so the carrier was not bound to know the arrangements between the consignor and the consignee. The symbol did not put the carrier under inquiry as to an arrangement between consignor and consignee, as it would have done in the case of an order bill of lading.—*Mayer v. Southern Pac.*, 159 N. Y. Supp., 93.

#### Binding Character of Filed Regulations

Action was brought against the New York Central for damages to a shipment from Detroit to New York. The goods were packed by the plaintiff in a car at Detroit on the Michigan Central. The bill of lading had a notation: "Car to be opened by consignee," but it was opened by the defendant's employees. The plaintiff's witnesses testified that in the course of unloading some of the goods were damaged. The defendant gave evidence to the effect that the car was improperly loaded by the plaintiff's representatives at Detroit. On appeal from a judgment for the plaintiff, the New York Appellate Division holds first, that, as the New York Central had filed with the Interstate Commerce Commission rules and regulations providing that that company should unload all cars consigned to this [Franklin street] station, the Michigan Central had no authority to vary that regulation; following the rule as to the binding character of the tariffs and regulations filed with the Interstate Commerce Commission. It was also held that an instruction requested by the defendant should have been given that "if the jury find that the damage was due to the improper packing by the shipper, the defendant is not liable." Judgment was therefore reversed and a new trial ordered.—*Greenwald v. New York Central*, 159 N. Y. Supp., 15.



## Railway Officers

### Executive, Financial, Legal and Accounting

J. S. Bache has been elected a vice-president of the Ann Arbor, with headquarters at New York.

P. E. Crowley, assistant vice-president of the New York Central at New York, has been appointed vice-president in charge of operation of the New York Central and the Ottawa & New



P. E. Crowley

York, with headquarters at New York. He was born in August, 1864, at Cattaraugus, N. Y., and began railway work with the Erie as messenger boy in 1878. The following year he was promoted to telegraph operator, and was later station agent and then train despatcher on the same road. In 1890 he entered the service of the New York Central & Hudson River as train despatcher on the Rome, Watertown & Ogdensburg division, and in 1891 was promoted to chief despatcher. The same year he was made trainmaster, and in Sep-

tember, 1900, was appointed chief trainmaster of the Pennsylvania division. He was promoted to superintendent of the Pennsylvania division in August, 1901; assistant general superintendent in December, 1904; general superintendent in June, 1905, and assistant general manager in March, 1907. He remained in that position until April, 1912. He was then general manager until January 1, 1915, when he was appointed assistant vice-president of the New York Central Railroad, which took over the New York Central & Hudson River and the Lake Shore & Michigan Southern. On the 14th of this month he was appointed vice-president in charge of operation of the same road and the Ottawa & New York, succeeding A. T. Hardin.

George R. Martin, whose election as vice-president of the Great Northern has already been announced, was born July 3, 1864, at Evans Mills, N. Y. He received his early education



G. R. Martin

at this place, and entered railway service in 1885, since which time he has been consecutively up to January 1, 1887, telegraph operator and agent of the Chicago & North Western; from January 1, 1887, to July, 1890, station agent, train despatcher and chief clerk to the superintendent of the Minneapolis, St. Paul & Sault Ste. Marie. From July 1, 1890, to August 1, 1894, he was in the accounting department of the Great Northern, and from August 1, 1894, to January 1, 1897, he was assistant auditor of disbursements of this same

road. From January 1, 1897, to March 1, 1897, he was special superintendent of the Great Northern, and from March 1, 1897, to March 1, 1898, general superintendent of the Montana Cen-

tral, a subsidiary of the Great Northern. He returned to the Great Northern on March 1, 1898, as general superintendent of the Central district, and held this position until March 1, 1899, when he was appointed auditor of disbursements, and remained in this capacity up to November 1, 1902. From this date to January 1, 1905, he was general auditor on this same road, being assigned to special duty in the president's office from January 1, 1905, to May 15, 1905. On the latter date he was appointed assistant to the controller, and held this position until January 1, 1906, when he became assistant controller. He was elected controller June 1, 1911. His present election took effect September 1, 1916. In addition to the new duties he is also vice-president of the Great Northern Steamship Company and of the Northern Steamship Company; chairman of the pension board of the Great Northern Railway; vice-chairman of the Great Northern Employees Investment Company, and controller of the Great Northern Express Company, as well as controller of all the minor railway and subsidiary companies of the Great Northern System.

Abraham Tracy Hardin, vice-president of the New York Central, in charge of operation, has been promoted to a position in which he is assistant to the president regardless of department, and in connection



A. T. Hardin

with lines not directly operated; and his place as head of the operating department is taken by P. E. Crowley. Mr. Hardin continues as vice-president of the New York Central, and at the same time is appointed vice-president of the Ottawa & New York, the Michigan Central and the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at New York. He was born in 1868, in South Carolina, and graduated from the University of South Carolina with the degree of civil engineer in 1894. In 1882 he had

been a telegraph operator on the Richmond & Danville, and from 1882 to 1890 he was agent, and then stenographer, on that road. He attended college from 1890 to 1894, and then for four years was in the maintenance of way department of the Southern Railway. From 1898 to September, 1899, he was supervisor and division engineer on the Eastern division of the New York Central & Hudson River. He was then promoted to engineer of track, and from February, 1903, to July, 1905, he was engineer of maintenance of way; then for about one year he was assistant to the general manager. From June, 1906, to April, 1912, he was assistant general manager; he was then appointed assistant vice-president, and in April, 1913, became vice-president. On January 1, 1915, he was appointed vice-president, in charge of operation, of the New York Central Railroad, the new company which took over the New York Central & Hudson River, and the Lake Shore & Michigan Southern; and on September 14, 1916, was appointed vice-president of the New York Central, the Ottawa & New York, the Michigan Central and the Cleveland, Cincinnati, Chicago & St. Louis.

W. M. Wadden, treasurer of the Ann Arbor, has been elected vice-president and treasurer, with office at New York City.

Edward L. Brown, whose election to the presidency of the Minneapolis & St. Louis in succession to Newman Erb, resigned, has just been announced, was born in Iowa in 1864. He entered railway service with the Chicago, Rock Island & Pacific in 1875 as a messenger boy. From 1887 to 1890 he was consecutively telegraph operator, station agent and train despatcher on this same road. In 1883 he was appointed joint agent of the Chicago, Rock Island & Pacific, the Wabash and the Iowa Central, in which capacity he served until 1888. From this time up to April, 1891, he was general agent of the St. Paul &

Duluth, with office at West Superior, Wis., and from April, 1891, to November, 1891, he was commercial agent on this same road, with headquarters at St. Paul, Minn. In November and December of 1891 he was chief despatcher and superintendent of telegraph, and from December, 1891, to March, 1896, he was master of transportation on this same road, being promoted superintendent in March, 1896, and retaining this position until June, 1900. From June 15, 1900, to February 1, 1902, he was superintendent of the Lake Superior division of the Northern Pacific, with office at Duluth, Minn., and from February, 1902, to April, 1903, he was general superintendent of the Montana Central. In April, 1903, he was appointed general superintendent of the Eastern district of the Great Northern, and held this connection until March, 1907, when he became general superintendent of the same district, with headquarters at St. Paul, Minn., which position he filled until October, 1907. From October, 1907, to February, 1912, he was general superintendent of the Western district of this same road, having his headquarters at Seattle and Tacoma, Wash. From February, 1912, to July, 1913, he was vice-president of the Denver & Rio Grande at Denver, Colo. In July, 1913, he was elected vice-president of the Western Pacific also, and transferred his headquarters to San Francisco, Cal. Mr. Brown held these latter two offices up to the time of his present election, September 1, 1916.

#### Operating

W. N. Bickler has been appointed trainmaster of the Northern Pacific, with headquarters at Butte, Mont.

W. N. Richler has been appointed trainmaster of the Montana division of the Northern Pacific, with headquarters at Butte, Mont.

J. J. O'Connor has been appointed assistant general manager of the operating department of the Milwaukee Refrigerator Transit & Car Company, with office at Milwaukee, Wis.

G. G. Derby, trainmaster of the Atchison, Topeka & Santa Fe, with office at Newton, Kan., has been appointed division superintendent, with headquarters at Arkansas City, Kan., succeeding W. K. Etter, promoted.

G. G. Allen, who resigned as general storekeeper of the Chicago, Milwaukee & St. Paul, has been appointed assistant general manager in charge of the manufacturing department of the Milwaukee Refrigerator Transit & Car Company, with office at Milwaukee, Wis.

C. E. Hill, road foreman of engines on the first district of the Albuquerque division of the Atchison, Topeka & Santa Fe, has been appointed trainmaster, with office at Gallup, N. M., succeeding A. R. Woods, transferred to Winslow, Ariz., relieving E. H. Duffield, resigned.

W. K. Etter, division superintendent of the Atchison, Topeka & Santa Fe, with office at Arkansas City, Kan., has been appointed general superintendent of the western district of the eastern lines, with headquarters at Newton, Kan., succeeding Edward Raymond, promoted.

John A. Ahern, trainmaster of the Boston & Maine at Lyndonville, Vt., has been appointed assistant superintendent, with office at Lyndonville, succeeding George W. Cree, deceased; George F. Ferguson has been appointed trainmaster, succeeding Mr. Ahern, and Ray L. Lilley has been appointed chief train despatcher, succeeding Mr. Ferguson.

Edward Raymond, general superintendent of the western district, eastern lines, Atchison, Topeka & Santa Fe, with office at Newton, Kan., has been appointed general superintendent of the eastern district, eastern lines, with headquarters at Topeka, Kan., succeeding R. J. Parker, appointed general manager of the western lines, at Amarillo, Tex.

F. M. Brown, chief train despatcher of the Pittsburgh & Lake Erie at Pittsburgh, Pa., has been appointed superintendent, with office at Pittsburgh. Mr. Brown was born on January 4, 1871, at Monmouth, Ill., and was educated in the common schools. He began railway work on June 4, 1888, with the Pittsburgh & Lake Erie, and served consecutively as train despatcher, night chief despatcher and chief train despatcher until 1907, when he became superintendent of telegraph. In 1909 he was appointed

assistant trainmaster, and since 1912 served as chief train despatcher, until his recent appointment as superintendent of the same road, with office at Pittsburgh, as above noted.

Fred C. Fox, who has been appointed general manager of the eastern lines of the Atchison, Topeka & Santa Fe, with headquarters at Topeka, Kan., was born October 9, 1863, at Marysville, Ohio. He was educated in the schools of this city, and entered railway service in 1880, from which time and up to July 1, 1881, he was a telegraph operator on the Cleveland, Columbus, Cincinnati & Indianapolis. From July 4, 1881, to September, 1890, he was telegraph operator, relief agent, and freight and ticket agent on the New Mexico and Rio Grande divisions of the Atchison, Topeka & Santa Fe, at various stations along the line. From September, 1890, to June, 1892, he was chief despatcher on the Rio Grande division, and from 1893 to February, 1897, trainmaster of this same division. From February, 1897, to December 15, 1900, he was trainmaster on the New Mexico division, and from December 15, 1900, to January 21, 1901, he was superintendent of the western division, with headquarters at La Junta, Colo. He was made superintendent of the New Mexico and Rio Grande division at Las Vegas, New Mexico, in January, 1901. From March, 1903, to April, 1905, he was superintendent of the Middle division at Newton, Kan., and from April to June of the year 1905 he was general superintendent of the Western Grand division, with office at La Junta, Colo. Since June, 1905, he has been general superintendent of the Eastern Grand division at Topeka, Kan., and then general manager of the western lines, with office at Amarillo, Tex. In addition to these connections on the Atchison, Topeka & Santa Fe proper, he is also vice-president and general manager of the Pecos & Northern Texas, the Pecos River Road and the Southern Kansas Railway of Texas.



F. C. Fox

#### Traffic

Robert Hunter has been appointed commercial agent of the Carolina, Clinchfield & Ohio, with headquarters at Pittsburgh, Pa.

W. E. Shurtleff, commercial agent of the Pere Marquette, with office at Cleveland, Ohio, has resigned to engage in another line of business.

E. S. Banks has been appointed traffic manager of the Houston & Brazos Valley, with office at Freeport, Tex., succeeding J. W. Knightlinger, resigned.

C. W. Mount, district freight and passenger agent of the Oregon-Washington Railroad & Navigation Company, with headquarters at Seattle, Wash., has resigned.

C. S. Stephens, commercial agent of the Pere Marquette, with headquarters at Indianapolis, Ind., has been appointed commercial agent at Cleveland, Ohio, succeeding W. E. Shurtleff, resigned.

C. H. Walter, traveling freight agent of the Pere Marquette, with headquarters at Toledo, Ohio, has been appointed commercial agent at Indianapolis, Ind., succeeding C. S. Stephens, promoted.

H. C. Hanley, contracting freight agent of the Atchison, Topeka & Santa Fe, with office at Chicago, Ill., has resigned to accept employment with the Belt Railway Company of Chicago as commercial agent at Kansas City, Mo.

W. S. Elliott has been appointed district freight and passenger agent of the Oregon-Washington Railroad & Navigation



Company, with headquarters at Spokane, Wash., and W. R. Skey has been appointed district freight and passenger agent at Wallace, Idaho, with jurisdiction over territory east of Tekoa and Bell, Wash.

#### Engineering and Rolling Stock

W. F. Fourrier has been appointed assistant engineer of the Atchison, Topeka & Santa Fe coast lines, with headquarters at Needles, Cal., vice B. H. Quinham, resigned.

W. T. Wiechert has been appointed road foreman of engines on the Montana division of the Northern Pacific, with headquarters at Butte, Mont., succeeding William Dean, resigned.

E. J. Snell, master mechanic of the New York Central at Corning, N. Y., has been appointed master mechanic, with office at Watertown in place of W. D. Chaffee, who has been transferred as master mechanic to Corning in place of Mr. Snell.

Charles F. Nye, who has been appointed supervisor of water supply of the Wheeling & Lake Erie, with headquarters at Brewster, Ohio, was born in Canton, Ohio, July 24, 1892. He received his preliminary education in the schools of this city, and entered railway service in June, 1908, taking employment in the water supply department of the Wheeling & Lake Erie. In 1913 he was promoted to water gang foreman, and retained this connection until his present appointment became effective, September 1, succeeding his father, A. Nye, deceased.

#### OBITUARY

William J. Calhoun, formerly minister to China, and from 1898 to 1900 a member of the Interstate Commerce Commission, died at his home in Chicago September 19, at the age of 68.

John Moore James, superintendent of the Renovo division of the Pennsylvania Railroad, with headquarters at Renovo, Pa., died on September 17 of acute pneumonia in the Erie (Pa.) hospital, at the age of 41. A portrait of Mr. James and a sketch of his railway career were published in the *Railway Age Gazette* of May 5, 1916, page 1012, at the time he was appointed superintendent of the Renovo division.

**SWISS FEDERAL RAILWAY RECEIPTS.**—The Swiss Federal Railway receipts decreased from \$41,055,153 in 1913 to \$35,199,340 in 1914, the approximate decrease during the last five months of 1914 being 30 per cent. The operating expenses also decreased from \$25,722,654 in 1913 to \$24,958,567 in 1914. The surplus in 1914 available for railway reconstruction and the renewal of railway material, as well as for special funds, was therefore only \$10,240,773, as compared with \$15,332,499 in 1913.

**INDIAN RAILWAY MANAGEMENT.**—The question of providing adequate railway facilities for the growing commerce of India is one of the most serious problems with which the Indian government is confronted. An important step has been taken by the Indian Railway Board with a view to determining a definite policy for the future. In a communication from Simla to the leading commercial bodies of India it is stated that the investigation by the board of the comparative advantages of the management of railways by companies on the one hand, and by the state on the other, has now been completed, and it has been found impossible to base any definite finding upon the statistical results worked out. The board has, accordingly, frankly adopted the course of inviting the opinion of commercial bodies on the subject. These bodies have had practical experience of the virtues and failings of railway management, and they are asked to state whether in their opinion state-managed or company-managed lines have given the best services to the public. Mr. Couchman, member of the railway board, has been making what is known as a monsoon tour. He was last spoken of as at Naini Tal, where he inspected existing arrangements and examined proposals for a wire rope tramway. Later on Mr. Couchman was to proceed to Bareilly, where he was to inspect the Rohilkhand and Kumaon Railway. Still later he was to proceed to Lucknow for the purpose of conferring with the agent of the Oudh Rohilkhand Railway. At Dhanbaid, Mr. Couchman was to devote his time to sundry proposals relating to collieries, and he was to accompany Sir G. Barnes through the local coal-fields, returning subsequently to Calcutta.—*Engineering, London.*

## Equipment and Supplies

### LOCOMOTIVES

THE CAMBRIA & INDIANA is inquiring for one Mikado type locomotive.

THE BELT RAILWAY OF CHICAGO is inquiring for 5 ten-wheel switching locomotives.

THE NEVADA CONSOLIDATED COPPER COMPANY is inquiring for 2 0-6-2 type locomotives.

THE DELAWARE, LACKAWANNA & WESTERN is inquiring for 5 Pacific type locomotives.

THE BUSH TERMINAL COMPANY has ordered 1 four-wheel switching locomotive from the Baldwin Locomotive Works.

THE BETHLEHEM STEEL COMPANY has ordered 4 four-wheel switching locomotives from the Baldwin Locomotive Works.

THE MARYLAND STEEL COMPANY has ordered 2 six-wheel switching locomotives from the Baldwin Locomotive Works.

THE STANDARD OIL COMPANY, Bay Way, N. J., has ordered one 0-4-0 type locomotive from the Baldwin Locomotive Works.

THE NEW YORK CENTRAL, reported in the *Railway Age Gazette* of September 8 as contemplating the purchase of 230 locomotives, has placed an order for 115 locomotives with the American Locomotive Company, and has ordered 115 from the Lima Locomotive Corporation.

### FREIGHT CARS

THE CHICAGO & ALTON is inquiring for 200 automobile cars.

THE SEABOARD AIR LINE is inquiring for 50 to 100 stock cars.

THE PERE MARQUETTE is in the market for 1,000 40-ton box cars.

THE CHESAPEAKE & OHIO is in the market for 1,000 hopper cars.

THE MISSOURI PACIFIC is reported as inquiring for 2,000 general service cars.

THE WESTERN MARYLAND is in the market for 2,000 50-ton steel hopper cars.

THE CHICAGO, BURLINGTON & QUINCY is reported in the market for a number of freight cars.

THE UTAH COPPER COMPANY has ordered 24 mine cars from the Pressed Steel Car Company.

THE NEW YORK, CHICAGO & ST. LOUIS has ordered 500 steel center frames from the Ryan Car Company.

THE WHEELING & LAKE ERIE is inquiring for 500 to 1,500 70-ton flat cars, and 500 70-ton hopper cars.

THE WESTERN PACIFIC has ordered 1,000 box cars and 150 stock cars from the Mount Vernon Car Manufacturing Company.

THE ARMOUR CAR LINES are inquiring for 300 center underframes. They will also build 300 refrigerator cars in their own shops.

THE BETHLEHEM STEEL COMPANY has ordered 30 coke cars from the Pressed Steel Car Company. This company is also in the market for 150 70-ton steel ore cars.

THE MINNEAPOLIS, ST. PAUL & SAULT SAINTE MARIE, reported in the *Railway Age Gazette* of August 25 as being in the market for 250 ore cars, has ordered these cars from the Haskell & Barker Car Company.

### PASSENGER CARS

THE GREAT NORTHERN.—The item in the *Railway Age Gazette* of September 15, to the effect that this road is in the market for 125 all steel passenger cars, has been denied.

THE NEW YORK CENTRAL, reported in the *Railway Age Gazette* of September 8 as inquiring for 10 70-ft. coaches, has ordered 10 passenger coaches from the Pressed Steel Car Company.

THE LEHIGH VALLEY, reported in the *Railway Age Gazette* of August 18 as being in the market for 25 all-steel 60-ft. baggage and express cars, has ordered this equipment from the Pullman Company.

### IRON AND STEEL

THE SOUTHERN RAILWAY is in the market for 7,000 tons of steel for bridges.

THE PITTSBURGH & LAKE ERIE has ordered 700 tons of steel from the American Bridge Company.

THE CRUCIBLE STEEL COMPANY has given a contract to the American Bridge Company for fabricating and erecting 2,000 tons of steel for a new plant addition at Pittsburgh.

THE MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE has ordered 375 tons of spans and girders from the Minneapolis Steel & Machinery Company for the approach to the Ashland ore dock.

THE ATCHISON, TOPEKA & SANTA FE has purchased 7,000 tons of tie plates. This was incorrectly reported as 7,000 lb. in the *Railway Age Gazette* of September 15. The company has also bought 1,500 tons of tie plates for Pueblo, Colo., delivery from the Railroad Supply Company, and has bought angle bars for 90 miles of track to be delivered about April 1, 1917, from the Illinois Steel Company.

### MISCELLANEOUS

THE CHICAGO & ALTON is now contracting for its miscellaneous track and specialty supplies for 1917.

THE CHICAGO & NORTHWESTERN is inquiring for 9,000,000 ft. of timber for ore dock No. 4 at Ashland, Wis.

THE CHICAGO, MILWAUKEE & ST. PAUL is asking for bids on 10,000,000 ft. of lumber for car cooerage purposes.

THE PERE MARQUETTE has awarded a contract to the Roberts & Schaefer Company for building a large three-track reinforced concrete automatic electric counterbalanced bucket coaling plant at Flint, Mich. In this station will be installed three power operated "RandS" measuring coal loaders for measuring and recording all coal issued to locomotives. Contract price, \$19,000.

THE PENNSYLVANIA RAILROAD has ordered a 20,000 kw., 11,000-volt, 25-cycle turbine unit complete with a 24,000 sq. ft. surface condenser and auxiliaries from the Westinghouse Electric and Manufacturing Company. This turbine is for installation in the railroad's Long Island City powerhouse, which supplies power for the operation of the Pennsylvania Terminal and the Long Island Railroad.

**RAILWAY CONSTRUCTION BY BOLIVIAN GOVERNMENT.**—The call of the Bolivian government for bids on the construction of the Potosi-Sucre Railway has been annulled. No bids having been received, the government has decided to proceed with the construction of the railway through the Department of Public Works. The Potosi-Sucre Railway is an extension of the Rio Mulato branch of the Antofagasta & Bolivia Railway.

**POWDERED FUEL FOR SWEDISH RAILWAYS.**—A recent report of the Swedish Department of Commerce states that the Swedish State Railways have been experimenting with powdered peat as fuel for locomotives, and the railway directors have recommended an appropriation of more than \$300,000 for a factory to produce sufficient powdered peat to supply all the locomotives on one of the State railway lines.

**A GLASGOW FORFEIT.**—In a specification recently issued for a 6,000 kw. turbine by the Glasgow Corporation, the following clause was inserted: "Should the contractor fail to meet the guaranteed steam consumption, the contractor shall pay to the corporation the sum of £750 for every quarter of a pound or part of a quarter of a pound consumed over and above the figure of guaranteed steam consumption per kilowatt-hour."—*Power*.

## Supply Trade News

Warren S. Corning has been appointed general sales agent of the Fox River Iron Company, Aurora, Ill., with headquarters in the Transportation building, Chicago, Ill.

A. T. Whiting, vice-president and secretary of the Whiting Foundry & Equipment Company, Harvey, Ill., died at his home in Chicago, September 12, after only a few days' illness.

Reuben C. Hallett, for many years active in railway supply circles, and for several years past connected with the Duntley Products Sales Company, Chicago, Ill., died at his home in Chicago, September 10.

Herman Voelker, assistant general foreman of the American Car & Foundry Company, has resigned to accept employment as general foreman of the wood car department of the Ralston Steel Car Company, Columbus, Ohio.

H. K. Ellyson has been appointed eastern representative of the railroad and steamship department of the West Disinfecting Company, making his headquarters at the home office, 12 East Forty-second street, New York City. Mr. Ellyson has been connected with this company for some time in various capacities.

Frank Taylor Hyndman, superintendent of motive power and cars of the Wheeling & Lake Erie, has been appointed general manager of the Damascus Brake Beam Company, with office at Cleveland, Ohio,

effective August 1, 1916, with full charge of plant operation and production. He was born on September 29, 1858, and began railway work in 1872 as machinist apprentice on the Central of New Jersey at Ashley, Pa., and from 1874 to 1877 was an apprentice in the shops of the Lehigh Valley at Wilkes-Barre; then, for about three years, was brakeman and fireman on the Central of New Jersey. From March to November, 1880, he was a machinist on the Atchison, Topeka & Santa Fe at Raton, New Mexico,

and from March, 1881, to August, 1883, was machinist on the Pittsburgh & Western and with the Pittsburgh Locomotive Works, becoming an engineman on the Pittsburgh & Western in August, 1883. He remained in that position until September, 1895, when he was made trainmaster, and from April, 1896, to November, 1902, was master mechanic of the same road at Allegheny. He was then, for one month, master mechanic on the Baltimore & Ohio at Pittsburgh, and from December, 1902, to July, 1904, was master mechanic on the Buffalo, Rochester & Pittsburgh. In July, 1904, he was appointed superintendent of motive power of the same road at Dubois, Pa., and the following November went to the New York, New Haven & Hartford as general master mechanic at New Haven, Conn. He became mechanical superintendent of that road in May, 1906, resigning from that position on July 15, 1907, to enter the railway supply business. He was the Philadelphia representative of S. F. Bowser & Co., Inc., Fort Wayne, Ind., in July, 1913, when he was appointed superintendent of motive power and cars of the Wheeling & Lake Erie, which position he held until he was appointed general manager of the Damascus Brake Beam Company on August 1, as above noted.

The Van Dorn Electric Tool Company, Cleveland, Ohio, has recently completed and moved into a new plant, which will



F. T. Hyndman



make possible the doubling of the output of its line of portable electric tools. The buildings are of steel, brick and concrete construction, and are two and three stories in height.

W. E. Donaldson, head of the transportation and labor departments, and chief of the slag sales division of the Carnegie Steel Company's mills in the Youngstown district, has been transferred to Pittsburgh as special agent of the United States Steel Corporation, and head of the slag sales department. He will be succeeded by Williams Griffin, head of the district safety department, and George Davis will succeed Mr. Griffin.

To meet the growing demand for Armstrong tool holders a 50-ft. by 70-ft. steel and brick addition to its drop forging department is being built by the Armstrong Bros. Tool Company, Chicago. A new four-story building, 60 ft. by 130 ft., is also being erected. This is of reinforced concrete, fireproof construction, and, in addition to producing a warehouse for finished stock, will house the shipping department and the offices.

The Railway & Mine Supply Company and the Kincaid Foundry & Machine Company, newly incorporated, have opened joint offices in the McCormick building, Chicago, Ill. The officers of the supply



L. G. Binkley

company are L. G. Binkley, president, and G. H. Peabody, vice-president; and of the foundry company, G. H. Peabody, president, and L. G. Binkley, vice-president. The Railway & Mine Supply Company will conduct a general jobbing business in railway and mine supplies. The Kincaid Foundry & Machine Company, which is the successor of the Hershfield & Piper Machine Company, formerly located at Taylorsville, Ill., is building a foundry at Kincaid, Ill. Kincaid is located on the Chicago & Illinois Mid-

land about 90 miles from St. Louis, Mo. It is expected that the new foundry will be in operation some time in the month of December. The company will do a general foundry business in both gray and chilled iron, specializing in all kinds of castings for the railroad and mine business. G. H. Peabody, president of the Kincaid Foundry & Machine Company, was born in New York City in 1883. For several years he was engaged in the brokerage business in Wall street, following which he went to Chicago to open the first western branch office of the Lima Locomotive Corporation. He remained there as western manager of that company until 1914, when he returned to New York to become manager of the benzol department

of the Lackawanna Steel Company. A year later he joined the sales force of the Griffin Wheel Company at Chicago, and remained with that organization until recently, when he resigned to accept the presidency of the Kincaid Foundry & Machine Company. L. G. Binkley, president of the Railway & Mine Supply Company, was born at Marion, Ill., in 1882. In 1904 he entered the employ of the Egyptian Powder Company, Alton,

Ill., manufacturers of explosives for coal mining purposes. He remained with this company for 13 years, rising to the office of vice-president. He was also sales manager of the Equitable Powder Company, Alton, Ill., when he resigned from both positions on April 1, 1916, to promote the organization of the companies with which Mr. Peabody and he are now connected.

Burton W. Mudge, of Mudge & Co., who was recently elected president of the Safety First Manufacturing Company of Chicago, Ill., also, wishes to correct a statement given out from his office in connection with the territory to be covered by the latter concern, in its handling of the Franklin Manufacturing Company's products. Announcement was made that the Safety First Manufacturing Company would handle western territory in general for the products of the Franklin Manufacturing Company, but this is modified as follows: E. R. Rayburn, manager of the Chicago office of the latter company, will still continue to handle all of its products as heretofore; that is, all of the waste packing products, throughout the entire western part of the United States. The items to be handled by the Safety First Manufacturing Company, in connection with its association with the Franklin Manufacturing Company, will be their magnesia and asbestos lines, and the territory covered by such sales as made will pass along the western boundaries of Minnesota, Iowa, Missouri and Arkansas, and run from the northwestern corner of Louisiana through New Orleans.

H. E. Daniels, formerly western representative of the West Disinfecting Company, of New York City, has been appointed manager of the railroad and steamship department, with headquarters in the Railway Exchange, Chicago. Mr. Daniels was born in Boston, Mass., in 1873, where he received his early education and training. Upon graduating from school he took employment in the transportation department of the old Concord Railroad, now a part of the Southern division of the Boston & Maine. Later he entered the mechanical department of the New York, New Haven & Hartford as a fireman, and was later promoted to engineer. He was connected with this company nearly eight years, resigning to



H. E. Daniels

accept service with his present employer. Mr. Daniels will have his headquarters in the Railway Exchange, Chicago, Ill.

## TRADE PUBLICATIONS

**HYDRATED LIME.**—The hydrated lime bureau of the National Lime Manufacturers' Association, Pittsburgh, Pa., has issued bulletin A2, which describes and explains the influence of hydrated lime on the work, ability, segregation, uniformity, strength and permeability of concrete. Particular reference is made to the use of the hydrated lime as an integral waterproofing compound, and attention is called to its advantages in concrete that is to be spouted because of the increased plasticity obtained.

**PRUSSIAN RAILROAD RECEIPTS.**—Receipts of the Prussian State Railways for the transportation of freight in the second year of the war exceeded by 5 per cent the former high record, made in 1913. The receipts in 1915 were \$417,802,800, as compared with \$359,443,800 in 1914, and \$398,032,200 in 1913. Receipts for the transportation of passengers and freight in 1915 exceeded those of the previous year by \$2,620,000. Thus far in the present year there has been a further increase of more than 5 per cent in the revenue from transportation of passengers and freight.

## Railway Construction

**BELLE FOURCHE & NORTHWESTERN.**—Bids are being received by R. F. Furnish, vice-president and general manager for grading work and ties for a section of this line. Surveys are now being made out of Belle Fourche. The plans call for building from Belle Fourche, S. D., to Miles, Mont., 204 miles. H. F. Albers is president and James Mulcahy is a director, both of Miles City. The headquarters of the company is at Belle Fourche, S. D. (September 15, p. 479.)

**LUBBOCK & GREAT NORTHERN.**—A contract for building this line has been let to J. P. Nelson, San Antonio, Tex., it is said, for \$3,500,000. The proposed route is from Lubbock, Tex., northeast to Hollis, Okla., about 150 miles. Large quantities of construction material are being assembled at Lubbock preparatory to beginning grading and track laying. Residents of Kansas City and San Antonio and interests that are closely identified with the Missouri, Kansas & Texas are said to be back of the project. The incorporators include J. M. Elliott, S. S. Houston and F. V. Leak. (August 4, p. 213.)

**MONONGAHELA RAILWAY.**—Surveys are now being made, it is said, for an extension to be built from Fairmont, W. Va., southwest to Clarksburg, thence southeast to Belington, about 50 miles, where connection is to be made with the Western Maryland and the Coal & Coke Railroad.

**SOUTH CAROLINA ROADS.**—Plans have been made for building a line from Greenville, S. C., to connect with Brevard, N. C., Hendersonville and Asheville, about 50 miles. It is understood that surveys are being made. Russell N. Edwards, Indianapolis, Ind., may be addressed.

## RAILWAY STRUCTURES

**ALEXANDRIA, VA.**—The Southern Railway will carry out improvements at Alexandria to provide modern engine terminal facilities at Alexandria, consisting of a 20-stall roundhouse and 100-ft. turntable capable of handling the heaviest locomotives, mechanical coal handling plant with 100,000 tons storage capacity, electrically operated cinder pits, water tank, sand plant, small shop for running repairs, storehouse for oil and other supplies, wash and locker room for employees, together with the necessary tracks, on property owned just south of the National cemetery. Contract for the foundation work for the roundhouse and turntable has been awarded to J. P. Pettyjohn & Company, Lynchburg, Va.

**BIRMINGHAM, ALA.**—The Alabama Great Southern will construct at an early date a concrete coal chute and sand house at Birmingham to provide modern facilities for supplying coal and sand to locomotives. Other improvements will also be made at Birmingham, consisting of a water station at Pratt yard and a 50-ft., 150-ton track scale at Twenty-second street yard.

**COATESVILLE, PA.**—A contract has been let to Bennett & Randal, Lebanon, Pa., to build a reinforced concrete bridge over the west branch of Brandywine Creek for the Philadelphia & Reading. It will be a four-span, single track deck structure 37 ft. 6 in. between centers of piers.

**DALLAS, TEX.**—The new \$5,000,000 union passenger station was opened up to the general public here September 15. The structure follows in all essential features the big new Kansas City terminal.

**DECATUR, ALA.**—Improvements to the union passenger station are to be carried out by the Southern Railway, it is said, at a cost of \$10,000.

**GRANBY, QUE.**—Bids were received September 15 by the Montreal & Southern Counties for building a brick and reinforced concrete car barn at Granby. The building will be 22 ft. high, 60 ft. wide and 180 ft. long, and will cost about \$20,000.

## Railway Financial News

**ERIE.**—Tilney, Ladd & Co., New York, have sold at 83, \$1,000,000 first consolidated mortgage 4 per cent bonds of 1895-1996. At this price the bonds yield about 4.85 per cent. The total authorized and outstanding issue of these bonds is \$35,000,000. They are secured by direct mortgage on 789 miles of road, constituting practically the entire main line of the Erie system from Jersey City to Buffalo, subject to only \$36,406,600 prior liens. According to the terms of this mortgage, all but \$8,241,000 of the above \$36,406,600 prior lien bonds will be retired in 1920 by the issue of general mortgage 4s, which are a junior security.

In addition, through the deposit of securities, these bonds are in effect a second lien on nearly the entire main line from Buffalo to Chicago. A total of \$64,654,850 par value stock and bonds of various affiliated companies, operating 1,070 miles of road is deposited with the trustee.

This closed issue of \$35,000,000 prior lien 4s underlies \$35,885,000 general lien 4s, \$40,642,130 convertible 4s and \$176,271,300 preferred and common stock.

The earnings for the seven months of 1916, have increased more than \$7,000,000 and net earnings more than \$2,000,000.

Since 1901 the company has expended over \$100,000,000 for additions and betterments. The physical character of the company in 1901 limited its gross earnings to about \$40,000,000 per annum, whereas improvements now nearly completed, it is stated, will afford a capacity sufficient to yield a gross income of \$100,000,000 per annum.

These bonds are listed on the New York Stock Exchange. They may be made permanently tax-free in New York State by payment of \$5.40 per bond.

**NEW YORK, CHICAGO & ST. LOUIS.**—The Guaranty Trust Company of New York is offering \$1,100,000 4½ per cent equipment trust certificates of the New York, Chicago & St. Louis, dated August 1, 1916, at prices for the various maturities to yield approximately 4.6 per cent on the investment.

**PHILADELPHIA, BALTIMORE, & WASHINGTON.**—This company, without change in name, has absorbed the Philadelphia & Baltimore Central and the Elkton & Middleton. The Delaware Railroad and the Delaware, Maryland & Virginia are leased to the Philadelphia, Baltimore & Washington for long terms. These leases will now accrue to the consolidated Philadelphia, Baltimore & Washington. The corporate identity of the Delaware Railroad and the Delaware, Maryland & Virginia will not be abolished, and they are not included in the merger.

**OPERATIONS OF THE PERUVIAN CORPORATION (LTD.).**—The European war has adversely affected both Peru and Bolivia, and as a consequence the traffic on the various transportation lines operated by the Peruvian Corporation was seriously diminished during the year ended June 30, 1915. There was a decrease of \$1,194,311 in income as compared with the year ended June 30, 1914. The revenue account and balance sheet of the corporation for the financial year shows a profit of \$797,317, after deducting the usual charges and the debenture interest at the reduced rate of 4 per cent. A dividend of one-fourth per cent was paid on the preferred stock, which amounts to \$36,498,750. This carries with it a payment of 4 per cent on the debentures, which are valued at about \$24,332,500 at the present time. This corporation also carries common stock to the amount of about \$48,798,500. The traffic lines operated by the Peruvian Corporation are as follows: The Central Railway, which includes the Morococha branch and the Oroya-Huancayo extension; the Southern Railway, including the Cuzco extension; the Guaqui-La Paz Railway; the steamers on Lake Titicaca and River Desaguadero; the Ilo-Moquegua Railway; the Trujillo Railway; Paita to Piura Railway; the Pacasmayo & Guadalupe Railway (including the extension to Chilete); the Chimbote Railway, and the Pisco to Ica Railway. It also maintains and administers the Chira Canal. The temporary arrangement with the Peruvian government for the working of the Ilo-Moquegua Railway was terminated in 1915, the line being taken over by the government.